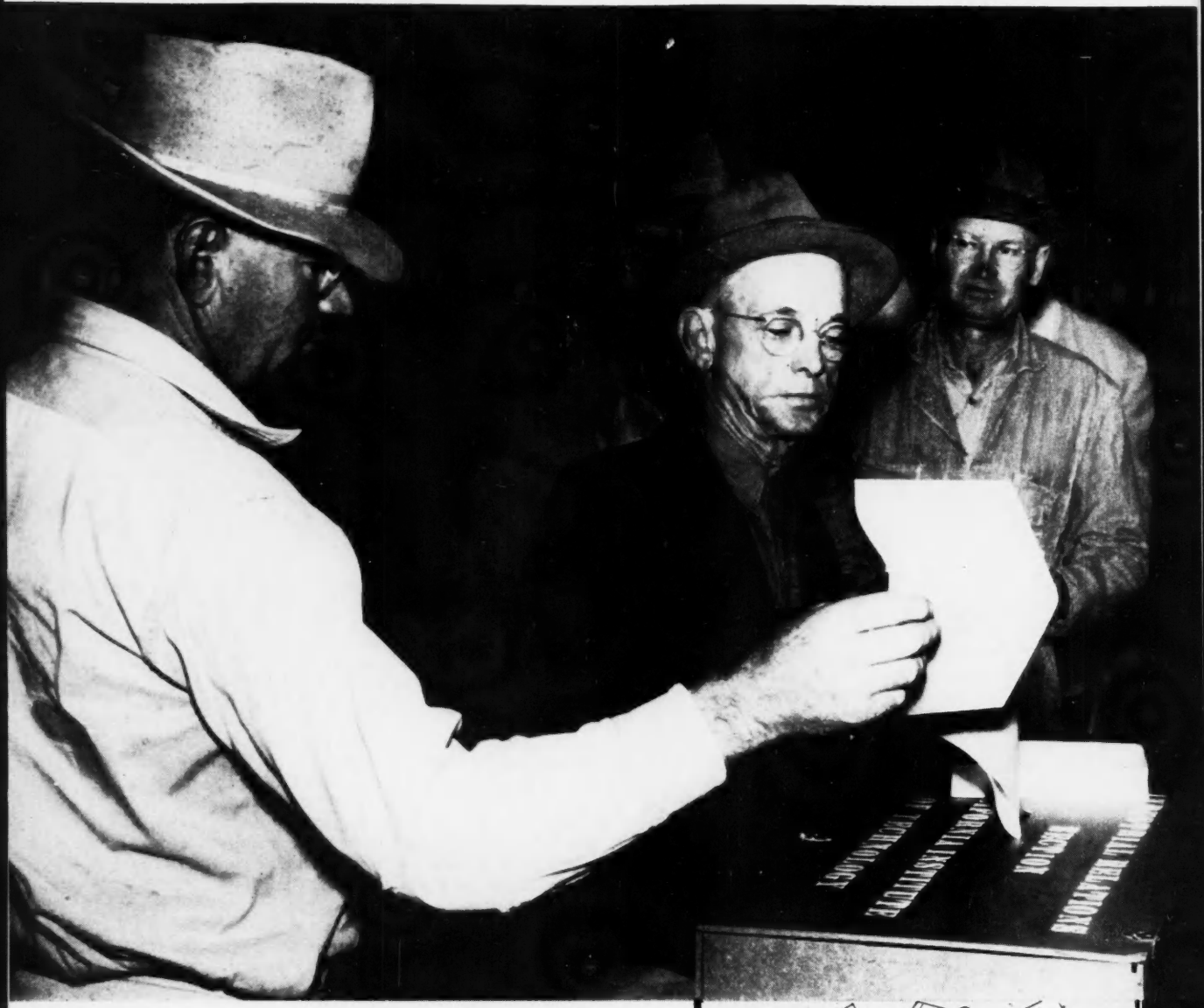
OCTOBER 26, 1953

NEWS ISSUE

Electrical World

Price 35 Cents

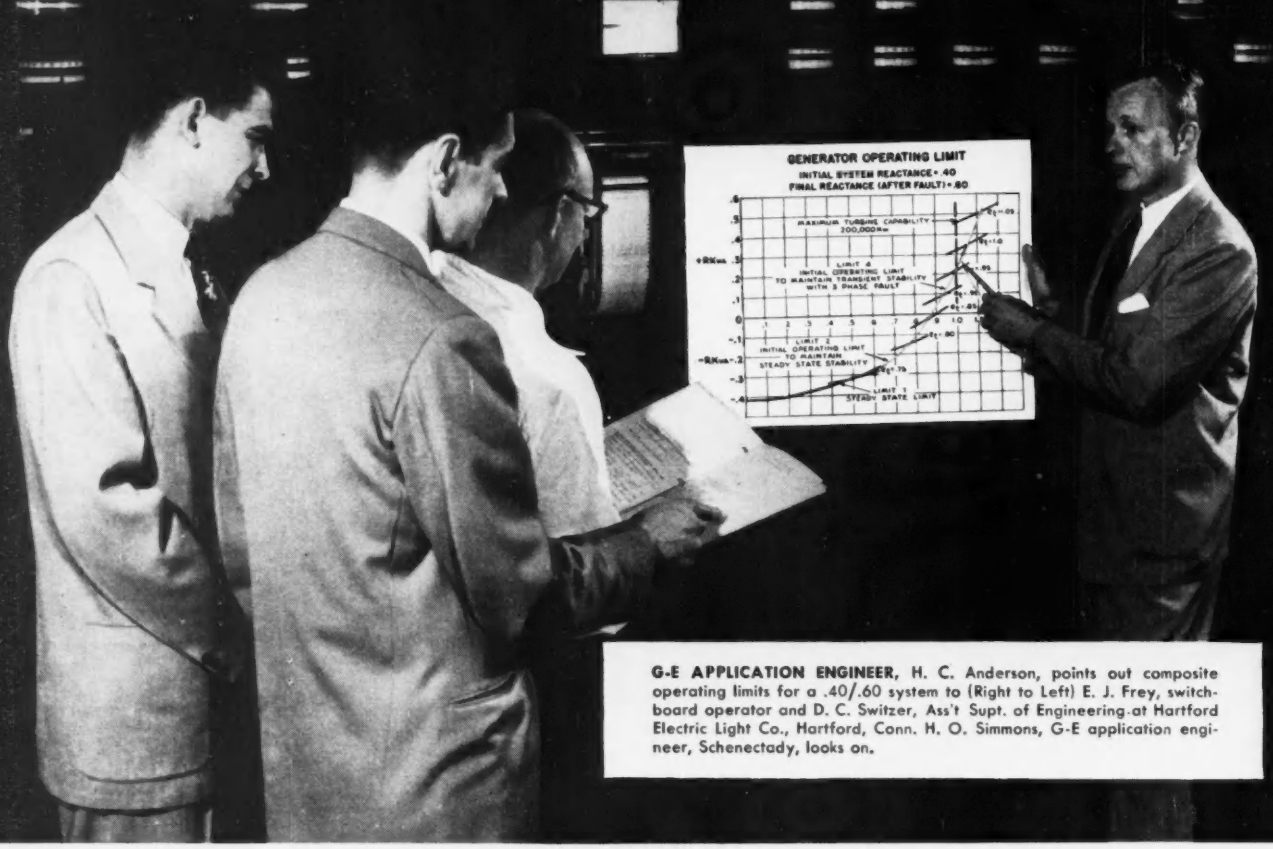
A McGRAW-HILL PUBLICATION



The employees go to the opinion polls as San Diego G & E puts itself up for . . .

TRIAL BY BALLOT

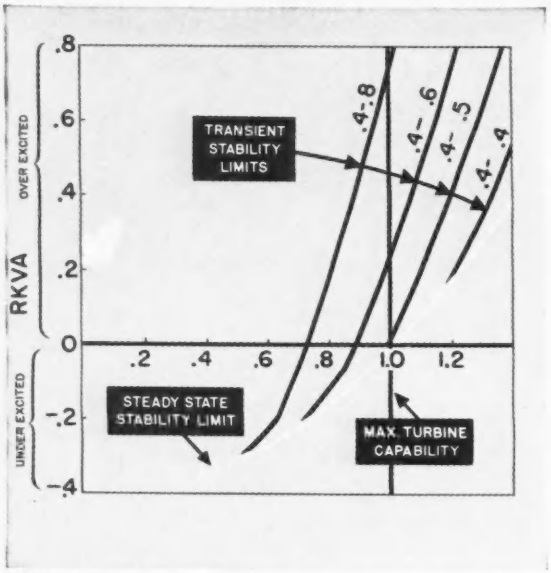
See Page 16



G-E APPLICATION ENGINEER, H. C. Anderson, points out composite operating limits for a .40/.60 system to (Right to Left) E. J. Frey, switchboard operator and D. C. Switzer, Ass't Supt. of Engineering at Hartford Electric Light Co., Hartford, Conn. H. O. Simmons, G-E application engineer, Schenectady, looks on.

New approach to system stability—

G-E ENGINEERING STUDIES HELP BOOST STATION OUTPUT, CUT OUTAGES



COMPOSITE LIMIT GUIDE, reactive KVA vs. KW, for generators on all systems with an initial reactance of .40. Solid black lines show specific generator excitation limits for systems with final reactance, after fault, of from .40 to .80.

Studies of power system stability, conducted by General Electric application engineers, today are helping utility companies obtain maximum kilowatt output from generating stations while minimizing the danger of system instability following severe faults, which could result in complete station shutdown.

Rapid system expansion and longer transmission distances, with the accompanying increase in system reactance, call for new attention to problems of system stability. This is particularly true if the system is split and/or reactors are added to prevent increases in circuit breaker interrupting requirements.

Operating guides developed from system studies now provide power station operators with a simplified means of keeping generator operation within known limits of stability. Setting up a minimum kilovar limit for any kilowatt output, these guides can be used to quickly estimate stability limits, insuring full utilization of generator capability as well as providing a tool for planning future system expansion.

Application engineers in G-E Apparatus sales offices can help apply these modern practices on your system. For full details write for GET-1972, General Electric Company, Section 301-232, Schenectady 5, N. Y.

1878 75 1953 YEARS OF ELECTRICAL PROGRESS

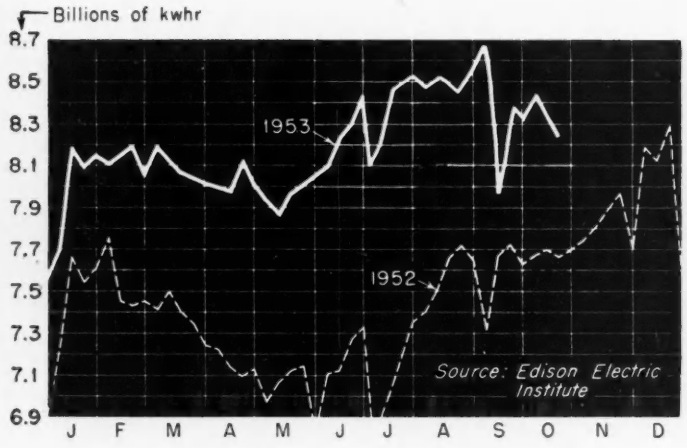
MORE POWER TO AMERICA

GENERAL ELECTRIC

VOLUME 140, NO. 17

October 26, 1953

Electrical World



Output Week Ended Oct. 17—8,264,800 000 Kwhr

Per Cent Change From Previous Year

	Total US	New Eng.	Mid. Atlan.	Cent. Ind.	West Cent.	South-east	South Cent.	Rocky Mount.	Pacific NW	Pacific SW
Oct. 17	+7.6	+5.6	+3.0	+2.1	+3.6	+17.7	+9.0	+7.0	+23.2	+5.1
Oct. 10	+7.9	+7.2	+4.0	+3.3	+5.3	+15.6	+8.5	+7.0	+22.0	+6.5
Oct. 3	+9.8	+5.7	+4.5	+4.3	+8.7	+20.1	+15.4	+7.5	+25.6	+3.8

Electric Power Statistics

		Latest Month	Preceding Month	Year Ago
Peak Load (Million Kw)	July	76.6	76.0	67.2
Capacity (Million Kw)	July	86.13	85.06	77.96
Production (Billion Kwhr)	Aug.	38.50	38.03	34.36
Hydro	Aug.	8.45	8.75	8.52
Fuel	Aug.	30.04	29.28	25.84
Fuel Consumption				
Coal (Million Tons)	Aug.	9.70	9.59	8.58
Oil (Million Barrels)	Aug.	6.55	6.35	5.37
Gas (Billion Cu Ft)	Aug.	112.88	109.35	105.40
Sales (Billion Kwhr)	July	32.13	31.77	27.70
Residential	July	8.47	8.37	7.50
Commercial	July	5.81	5.46	5.30
Industrial	July	15.50	15.80	12.64
Others	July	2.35	2.14	2.25
Net Income Class A & B Companies ($ Million)	Aug.	77.35*	74.11	69.39
Estimated Dec. '53 Peak (Million Kw)	July	86.2	86.2	88.3
Kwhr per Residential Customer (12 Month Average)	July	2,273	2,257	2,104
Revenue per Kwhr Residential Service (12 Month Average)	July	2.76¢	2.76¢	2.78¢
Canadian Production (Billion Kwhr)	July	5.18	5.26	4.84

Business Statistics

FRB Industrial Production Index†††	Sept.	239*	239*	231
Gross National Product Annual Rate ($ Billion)	2nd Qtr.	372.4	362.0	345.1
EW 5 Industry Production Index	Sept.	128.9	129.2**	125.8
ENR Construction Cost Index††	Aug.	128.3	126.6	122.7
BLS Consumer's Price Index	Aug.	115.0	114.7	114.3
NEMA Insulation Materials Sales Index†	Aug.	153	150	128
NEMA Electric Appliance Sales Index†	Aug.	90	86	100
NEMA Household Refrig. Sales Index†	Aug.	63	87	75

*Preliminary **Revised †1947-49=100 ††1949=100 †††Unadjusted

THIS WEEK

The Electrical Week 5
In the Industry 10
Technical Notes 10
News About People 29
Industrial Relations 34
Sales and Service 38
Financial 44
Manufacturers and Markets 47
Electrical Business Outlook 50

RALPH H FLYNN, Publisher
FISCHER BLACK, Editor
DANIEL T BRAYMER, Managing Editor
A E KNOWLTON.....Senior Associate Editor
FRANK R INNES.....Associate Editor
LEONARD M OLMSTED.....Associate Editor
ROBERT C BLATT.....Associate Editor
KENNETH K KOST.....Associate Editor
HERBERT FRANKEL.....Associate Editor
EDWARD ALLEN.....Midwestern Editor
HOWARD KNOWLTON.New England Editor
RUE M SHOOP.....Middle Eastern Editor
FRANCIS KOVALCIK.....Western Editor
JOSEPH MICHALAK.....Assistant Editor
DAVID REA.....Assistant Editor
JOHN F WICKLEIN.....News Editor
JEANNE BERNHARDT.Assistant News Editor
IRIS ST. CLAIR.....Departmental Editor
ARY MOSSIMAN..Manager of Market Research
DALLAS MALLARD.....Art Director
ANN L ADAMS.....Production Editor
W J WALLACE JR.....Assistant Art Director
G B BRYANT, JR..Mgr. Washington Bureau
JESSE MOCK.....Washington Correspondent
DEXTER M KEEZER....Dir. Economics Dept
ROBERT P ULIN, RICHARD W EVERETT
Economics Department
WORLD NEWS BUREAU, Joseph K Van Denburg, Jr., Editor; London, Paris, Frankfurt, Tokyo, Sao Paulo, Mexico City, Manila.
DOMESTIC NEWS SERVICE, Atlanta, Chicago, Cleveland, Detroit, San Francisco, Houston. Correspondents in 43 cities.
ADVERTISING STAFF. District Managers E F Coffey, New York; N V Palmer, Boston; F P Coyle, Philadelphia; M S Kearney, Cleveland; F S Chapin, Detroit; W H Meneilley, Chicago; J T Schaefer, St. Louis.

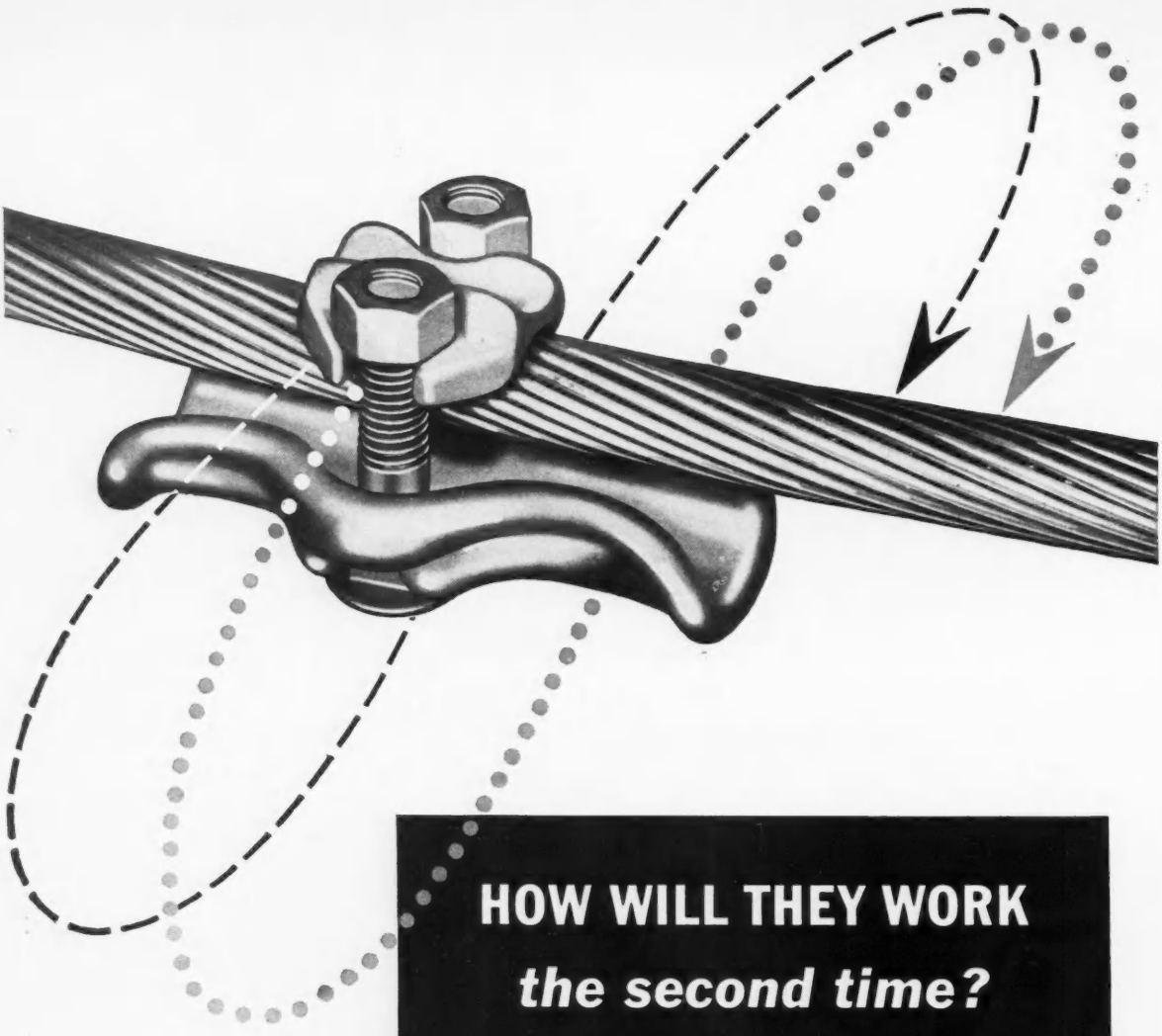
Electrical World
Vol. 140, No. 17
October 26, 1953

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 N. Broadway, Albany 1, N. Y. Executive, Editorial and Advertising Office: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y.** Donald C. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publication Division; Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Electrical World—Subscription Service, 99-129 North Broadway, Albany 1, N. Y. or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address.

Subscriptions are accepted only from executive, supervisory, and engineering personnel in electric utilities, manufacturing companies, and related fields. Position and company connection must be indicated on subscription orders.

Single copies 35¢. For the United States and possessions $6 a year, $9 for two years, $12 for three years. Canada, $7 for one year, $11 for two years, $14 for three years. (Canadian money, at par.) Other Western Hemisphere, $15 for one year, $25 for two years, $30 for three years. All other countries $25 for one year, $40 for two years, $50 for three years. Entered as second-class matter, November 16, 1936, at the Post Office at Albany, N. Y., under the Act of March 3, 1879. Printed in USA. Copyright 1953, by McGraw-Hill Publishing Company, Inc. Permission required to reproduce any of contents.



HOW WILL THEY WORK *the second time?*

Make sure you get a clamptop device that will reassemble without trouble by choosing O-B. When released from the insulator, O-B clamps are free to slide along the conductor. Thus they can move back into perfect registration with insulators that are relocated as a result of maintenance or repair work.

That's why we suggest you ask yourself "How will they work the second time?" when you're choosing Clamptop Insulators. You know that conductors will be removed from some of them to rebuild crossarms, replace poles, or for change-outs. This will require clamps to be released and replaced.

With the easy re-alignment feature in O-B Clamptop Insulators you can be sure that clamps will register with insulators after change-outs or re-locations.

Ohio Brass

MANSFIELD OHIO, U.S.A.

IN CANADA: CANADIAN OHIO BRASS CO., LTD., NIAGARA FALLS, ONT.

4399-H

THE ELECTRICAL WEEK

Nation's first full-scale atomic power reactor will be built for the Atomic Energy Commission by Westinghouse Electric Corp, AEC member Thomas E. Murray told a PIP meeting in Chicago on Thursday. The reactor, to produce "at least" 60,000 kw, may be located at an AEC facility for separating U235 from natural uranium —Oak Ridge, Tenn., Paducah, Ky., or Portsmouth, Ohio. AEC hopes to have it on the line in three or four years. Reactor, design was inherited from a naval project . . . prior to Murray's disclosure, General Electric Co announced it intended to ask AEC for funds to build a power reactor to serve the commission's Hanford Works in Washington, now operating under GE contract (See Page 8).

With this issue EW begins a series of articles on the power situation around the world. The articles will cover areas not included in our annual reports from the major power-producing nations. We travel first (on Page 22) to Japan, where a McGraw-Hill World News correspondent reports on what that country has done to put itself in fourth place among the world's producers of electric power. The Nov. 9 issue will tell how Finland, stripped of one-third its capacity by the Russians in World War II, is recovering from the loss. Subsequent issues will deal with countries of Latin America, the Middle East, non-Communist Asia, Australia, and Africa.

Tennessee Valley Authority has drafted for consideration by the United Nations a proposal that $121 million be spent on construction of a Jordan River system to provide irrigation and electric power for Jordan, Syria, and Israel. Purpose: To permit resettlement of 200,000 Arab refugees.

Seattle City Light will put into affect Dec. 1 a rate reduction that will save its power users $1 million a year. The new residential rate, $5.14 for 500 kwhr, is the lowest in the nation, according to City Light.

Final returns on the GE baby derby: 181 babies born to employees Oct. 15, the company's 75th anniversary. The gimmick: each offspring arriving that day would get five shares of GE stock, worth about $373. PR Man's expectancy: 44. Stork's delivery: 103 boys, 78 girls, for $72,000 worth of publicity. PR Man announced "derby" nine months, one day before date.

Some sidelights: Four fortuitous families gave their children names with initials "G. E." . . . In Bridgeport, an employee who'd had her first baby 16 years ago had her second Oct. 15 . . . Schenectady, where the company employs 40,000, has a normal daily birth rate of 12. "GE Day" produced 39 to GE workers alone.

As EW went to press, about 2,000 of 2,770 employees of city-owned Memphis Light, Gas & Water Division were still out on a strike which began Oct. 15. Workers, most of whom are not union members, asked a 10% wage increase.

Off the Washington Wire—AEC officials do not see a setback for the industrial atomic power program resulting from announcement of the Russian H-bomb development. They say it had been anticipated in a general way and the commission had taken it into consideration in allocating a portion of its resources to industrial atomic power research.

BPA is hard at work on proposed changes in its rate schedules which are due in December of next year. Increases are in store and will range between 10 and 25% above present schedules. High percentage of cost allocations on hydro projects now under way will go to power—less to flood control and other project features.

Idaho PUC entered an endorsement of the Idaho Power Co plan to develop Snake River as hearings continued in Washington before an FPC examiner.

REA has lifted the stop order on a portion of transmission line construction by Eastern Kentucky Electric Cooperative, permitting co-op to let three contracts for 184 miles of 69-kv line.

Clarence Manion, chairman of President Eisenhower's Commission on Inter-Governmental Relationships appointed to make an objective study of federal functions such as power, called for sale of Tennessee Valley Authority to private enterprise. Sen Estes Kefauver of Tennessee and the liberal Americans for Democratic Action called for the removal of Clarence Manion.

Stock Issues—Iowa Southern Utilities plans to sell about 100,000 common shares sometime next month—Arizona Public Service will sell an issue of common soon.

A Pittsburgh firm reportedly is conducting research into direct conversion of heat energy into electric energy. The process, which aims at 80% thermal efficiency, transforms fuel to water-gas. This is fed to a set of porous electrodes, a second set of electrodes being fed with air. Transfer of oxygen from one electrode to another produces a direct current.

Coincident with a decision to ask for its first rate increase, Public Service Co of Colorado is taking steps to have the PUC assume regulatory control over the combination company's operations in 13 home rule cities. Utility asked PUC to set a hearing date on its original cost, as a preliminary to full-scale rate hearings.

Washington State Department of Fisheries announced it would seek rehearing of a state Supreme Court decision that City of Tacoma had a valid license from FPC to build a $146-million hydro project on the Cowlitz River. High court had affirmed a Circuit Court ruling.

Washington Water Power Co became the fourth Northwest utility to sign a 20-year contract with BPA (EW, Sept. 28, p 6). "A step in the right direction," said J. E. E. Royer, WWP vice president and general manager.

(Continued on page 10)

N.Y. Drops Bombshell in Niagara Suit

• State seeks High Court endorsement of its control of water rights through brief filed in FPC-Niagara Mohawk case

• Decision supporting New York's contentions would put state in key position to determine who shall develop Niagara power

New York Gov Thomas E. Dewey is seeking Supreme Court endorsement of state control over water rights at Niagara Falls.

If successful, this would appear to put Dewey in a key position to determine who will develop the hotly contested 1.1 million kw of electric power on the U. S. side of the falls.

The governor's bid for court backing added an ironic twist to the raging public-vs-private power controversy over Niagara development. Five leading New York electric companies seeking to build the huge project have opposed Dewey's proposal for state development. The federal government had been a third contender under Democratic Administrations, but dropped out this year when the Republicans took over.

Legal Maneuver

Friend of the Court . . . Resorting to a seldom-used legal maneuver, New York State went before the court in the role of "amicus curiae" (friend of the court) near the climax of a case which had pitted Niagara Mohawk Power Corp against Federal Power Commission.

Niagara Mohawk is one of the five companies sponsoring additional private power development at the falls.

The case, which had grown out of an accounting dispute between FPC and Niagara Mohawk, assumed sizable proportions when a court of appeals held that state water-use rights do not evaporate when encompassed in a FPC-licensed hydro project (EW, Jan. 12, p 58). This appeared to give to states a veto power over hydroelectric developments which depend on state-granted, water-use rights.

Contending that it has "full control" over licensing water power development on all navigable streams in the nation, FPC had appealed the lower court decision to the Supreme Court.

But it remained for N. Y. Attorney General Nathaniel L. Goldstein to attempt to tie the case to potential development of 1.1 million kw at the falls. He did this in the "amicus curiae" brief filed just two days before the Niagara Mohawk-FPC case came to trial.

Caught Off Guard . . . This last-minute maneuver caught both government and company lawyers off guard. John W. Davis, representing the company, requested and was granted the privilege of filing a "reply memorandum" to the state brief. Legal observers noted this was an unusual departure from supreme court procedure.

FPC General Counsel Willard W. Gatchell arguing for the commission, said the brief has come too late for full study. Chief Justice Earl Warren granted him a similar period in which to reply to the state brief.

Neither Davis nor Gatchell were willing to discuss ramifications of the New York brief in their arguments before the high court. But the document made it clear the state had entered the case because of its interest in future power development at the falls. It emphasized that state laws provide that water power and power sites, owned or acquired by the state in vicinity of Niagara Falls, "shall always remain inalienable to and ownership, possession and control thereof, shall always be vested in the people of the state."

New York's Position

Specifically, the state attorney general asked the high court to hold that:

- Niagara Mohawk has acquired no proprietary rights in the waters of Niagara River.
- State proprietary rights in Niagara River are not superseded by the Federal Water Power Act or any other act of Congress.

The Dewey maneuver appeared designed to put Niagara Mohawk in a position either to sacrifice the specific case at bar, or to bow to state control over further water rights on the Niagara River. Such state control presumably would mean that state could at its own discretion either develop or let someone else develop the huge additional power potential.

This is the second move by Dewey this year to head off private enterprise development of additional Niagara Power. Near the closing of Congress he moved in to head off Senate action on a bill which would have directed FPC to license the five-company development.

Point at Issue

Specific Issue . . . New York State entry into the Niagara-Mohawk FPC Supreme Court case overshadowed the points directly at issue. Dispute which led to the Supreme Court trial arose out of 1950 FPC order which directed Niagara Mohawk to exclude certain payments it had made for water use rights in figuring its amortization reserve account. The commission contended these state-granted water rights "evaporated" when the company received its federal power license in 1921, and hence no compensation was required.

Effect of the FPC order would have added $399,000 to the company's amortization reserve account.

In his argument before the Supreme Court, Davis for Niagara Mohawk said, "I think you would search the history of commissions in vain to find a wider reach for power." The noted constitutional lawyer and former Democratic Presidential candidate, said the FPC order was an attempt to make the Federal Power Act "confiscatory" when Congress intended that it be no more than a "regulatory" measure.

Gatchell, arguing for the commission, said the sole question before the court was whether the federal or state governments have dominant authority over the power development of navigable streams. In passing the 1920 Water Power Act, Gatchell contended, Congress abolished private and state rights to the water power resources in navigable streams.

TVA Being Sued by Co-op

Volunteer Electric Cooperative files suit seeking to bar authority from selling power directly to paper firm

The action of Tennessee Valley Authority in by-passing one of its distributors and selling power directly to a large industrial plant has been challenged by Volunteer Electric Cooperative of McMinn County.

VEC filed suit in the U. S. District Court in Chattanooga Oct. 14 seeking to prevent TVA from selling more than $500,000 a year in power direct to Bowater Paper Co or else pay the co-op for the amount of revenue it would lose.

First Case Against TVA . . . This is the first case of ist kind against TVA and opens the way to a decision on other contracts of like nature which TVA has negotiated.

VEC claims it has an agreement with TVA that the co-op will distribute TVA power in McMinn County.

TVA has signed a contract with Bowater to supply its Charleston, Tenn., plant with 17,000 kw of firm power and 10,000 kw of standby power. Attorneys for VEC claim that the Bowater plant will use 12,240,000 kwhr a month.

VEC said in its suit TVA's action in furnishing power direct to Bowater and thereby eliminating the middleman is "ruthless and selfish." The co-op accused TVA of "dominating and dictating the use, supply, and distribution of electric power in the Tennessee Valley."

VEC asked the court to:

- Make TVA honor its agreement with VEC;
- Authorize an accounting for damages suffered by VEC;
- Grant VEC a judgment against TVA for the amount of revenue lost if TVA is not held to its agreement.

TVA's View . . . TVA's general counsel, Joseph C. Swidler, defended the agency's right to sell power directly to the paper firm.

Swidler told a reporter, "This is a problem we have discussed with Volunteer Electric without reaching an agreement. It involves a question whether this paper company falls in the category of large industrial customers served directly by TVA . . . or whether it is in the category of customers served by our distributors, which are usually residences and small business firms."

Hands Across a Rio Grande Power Dam

President Eisenhower and President Adolfo Ruiz Cortines of Mexico met atop Falcon Dam on the Rio Grande last Monday to dedicate the international project that will provide power and irrigation water equally for the people on either side of the border. When the five-mile-wide earth fill and concrete structure is complete, each nation will have 31,500 kw to distribute (EW, March 17, 1952).

Picture shows the two presidents and the gathering standing at attention as national anthems are played, following unveiling of the seals of the two nations.

(Electrical World will carry a picture story of the fiesta and ceremonies that accompanied the dedication in the News Issue of Nov. 9.)

Utilities, NRECA Express Views on Accounting Rule

Utility company representatives urged Federal Power Commission to reject a proposed accounting revision which they said would conflict with rulings of 21 state commissions permitting normalization of tax benefits resulting from the rapid tax amortization program.

The hearing was called by FPC to get views of different groups on its proposed change in accounting procedure which would permit only actual taxes for any year to be charged as an operating cost. The proposal also provides that FPC Uniform System of Accounts should not be revised to provide for normalization of taxes.

Power companies argued that if only taxes actually paid were reflected in their accounts, net income would be higher during the five-year period in which they were permitted to write off cost of certified facilities and this could lead to demand for rate cuts. After the five years, they said, taxes would increase sharply, cutting net income and making rate increases necessary.

National Rural Electric Cooperative Association argued accounts should reflect actual tax payments and rates should be fixed accordingly.

GE Proposes Reactor Plant . . .

. . . be built at government expense to serve AEC's Hanford Works and contribute power to the Northwest pool

The dual-purpose atomic reactor General Electric Co proposes to build at Atomic Energy Commission's huge Hanford Works would be financed entirely by the government and would produce power for government use and distribution.

This was said last week in New York by Dr C. Guy Suits, GE director of research, on the heels of an announcement by Pres Ralph Cordiner that GE had a concrete plan to build the nation's first large power reactor.

"We are now prepared," Cordiner said in Richland, Wash., "to recommend to the Atomic Energy Commission that General Electric proceed at once with development and design followed by construction and operation within five years, of a dual-purpose reactor at Hanford. This plant will produce both large quantities of plutonium and of electric power."

End a Drain . . . Success in the development work, he pointed out, would mean GE could change the huge Hanford operation, which it administers on an AEC contract, from a drain on the power-short Pacific Northwest into a substantial contributor of power.

In a New York press conference, Dr Suits said power produced in the reactor would supply Hanford's entire needs, with some left over for distribution outside the 650-mile area.

"Bonneville Power Administration," he said, "would undoubtedly be the purchaser. It would be the case of a government plant selling to a government agency."

Non-Profit Project . . . He emphasized that GE would not gain financially in the undertaking, but would develop and build the plant as part of its Hanford contract, which specifies the nominal profit of $1 to cover the entire life of the agreement.

Suits was asked if private utilities in the Northwest and private power interests elsewhere might not object to development of first commercial power from the atom as a government undertaking.

"I don't think the utilities would object to this," he replied, "because the primary purpose is to lower the cost of plutonium, and because it occurs in an area that has a power shortage. The dual-purpose project would eliminate the major sink (Hanford) for much of the power produced in the Northwest."

No private capital, he asserted, could build an economic power reactor today. "You won't be able to make an economic single-purpose reactor in the next ten years."

The proposed Hanford reactor will emphasize plutonium production, with power as a byproduct, he said.

No Change . . . Because the government would own the plant and its fuel, no changes in the Atomic Energy Act of 1946 would be required, as would be the case should private groups develop the first power reactor.

"We egotistically think we have more know-how than any other company or group of companies," Pres Cordiner commented.

He added, however, that GE "does not intend" to go into the power business.

The company, he said, would submit a "firm written" proposition to AEC in the near future. Asked what he thought the Commission's reaction would be, he said, "They know we've been studying various ways of doing this. We think they would look upon it with favor."

On this AEC refused to comment.

Moreell Is Hoover's Power Aid

Naming of Adm Ben Moreell, chairman of Jones & Laughlin Steel Corp, to head the task force on water and power resources has started the Hoover Commission's wheels turning in the highly controversial field of federal public works.

Significance of appointment of Moreell by Hoover is twofold:

- It shows the kind of free enterprise men being recruited by the Chairman Hoover to handle task studies in the eight fields laid out by the 12-member government reorganization commission at its initial meeting Sept. 29—particularly in the area of public power.
- It indicates that Hoover does not insist on complete acceptance of his own past utterances by task force heads.

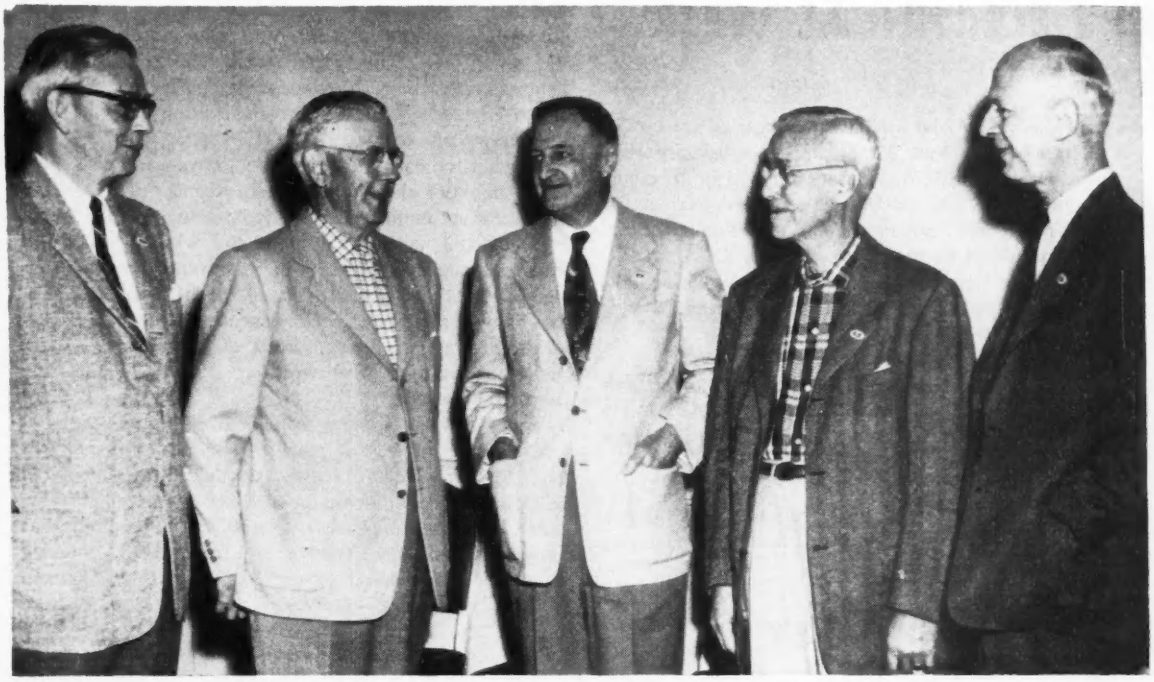
ADM BEN MOREELL

Hoover spoke his mind on public power in Cleveland last April. In a speech that has been widely quoted, he urged the U. S. to "get out of the business of generating and distributing power."

It is not likely that Hoover could persuade a majority of the new commission—or even the members of the task force on water and power—to recommend anything so drastic. Power is a byproduct of too many flood control, reclamation, and navigation projects. But you can be sure the commission will oppose creation of any more federal power empires through valley authorities like TVA.

Hoover is about ready to appoint the remaining members of the task force. The commission will meet again Nov. 16, and the chairman wants to have the task groups organized before that date.

Task force members will be men of national reputation in private industry, the professions, business and education. They will include men with long experience in the fields of engineering, law, accounting, and public utilities.



NEW OFFICERS and retiring officials of Association of Edison Illuminating Companies are pictured at recent AEIC meeting. They are (l to r) A. D. Barney, newly elected vice president; J. R. Whiting, retiring president; G. W. Van Derzee, new president; F. V. Magalhaes, secretary-treasurer until the end of this year; and Robert Gale who will assume the duties of secretary-treasurer on Jan. 1, 1954.

Whiting tells Association of Edison Illuminating Companies . . .

Utilities Are Assuming Civic Duties

G. W. Van Derzee, president, Wisconsin Electric Power Co, was elected president of the Association of Edison Illuminating Companies at their annual meeting in White Sulphur Springs, Oct. 8 to 10. A. D. Barney, chairman of Hartford Electric Light Co, was elected vice president.

The meeting, one of the largest in recent years, had a wide breadth of interest with the presence of Leslie A. Hicks, president, Hawaiian Electric Co, and Dr Ing. Giorgio Valorio, managing director, Societa Edison, Milan, Italy. Societa Edison was readmitted to membership in AEIC this year.

Good Citizens . . . "Utility companies, through their officers and employees, are assuming good citizenship responsibilities" was the conclusion of association president Justin R. Whiting in reporting upon a survey covering 47 companies. Whiting called upon the utilities to seize opportunities as they occur to lend aid to civic activities. He expressed the belief that "public utilities and all businesses have a golden opportunity now to tell the public the facts concerning the real contribution of corporations to their communities' and the country's economic health and well-being."

In the survey of 47 companies, Whiting found that 19% are engaged in reforestation programs; 20% are engaged in special programs for handicapped homemakers; 35% provide scholarships or fellowships at institutions of higher learning; all except urban companies have active rural programs; virtually every utility has had for many years an industrial development department; and business, industry and education programs receive overwhelming support.

Conservation Is Everybody's Business . . . "If we join hands, (in promoting conservation and the wise use of our national resources) we can build a great cathedral of natural resources, of beauty and utility, of continued economic good, which can be a monument to this generation of America." With this observation, A. C. Spurr, president, Monongahela Power Co, closed his address on conservation.

Spurr made a strong appeal for greater immediate action because, he said, "support of the conservation movement is just good progressive business management" and "the success of our industry depends on the economic well-being of our customers" who depend heavily on soil, water, timber and wild life.

Exploring Public Attitudes . . . Charles B. Delafield, vice president, Consolidated Edison Co, reported on a recent survey of the public's attitude in his company's territory. The pur-

(Continued on page 14)

THE ELECTRICAL WEEK

CONTINUED

Mergers—SEC approved a plan for merger of Derby Gas & Electric Corp (New York) and its subsidiary companies, Derby G&E, Wallingford Gas Light, Danbury & Bethel G&E, and Derby G&E of Connecticut (inactive) into a new company, Housatonic Public Service. Merger is subject to the approval of the U. S. District Court for the Connecticut District . . . Wisconsin PSC approved the merger of Lake Superior District Power and Northern Wisconsin Power.

Pacific P&L received FPC preliminary permit for 50,000-kw Swift Power Development and 35,000-kw Muddy Power Development, both on Lewis River in Skamania and Clark Counties in Washington.

Obituary—Walter E. Olson, vice president of Northern States Power Co, died in St. Paul, Minn., on Oct. 11. His age was 65.

IN THE INDUSTRY

The shortage of engineers is no secret to utility management. It has been discussed too frequently at industry meetings. But overall it was not until the past year or two that more than a token effort has been made to remedy the situation. The truth is that the industry didn't know what the remedy was. And when it did find out, it floundered around trying to determine the method of application. This is said not in criticism but in appreciation. Selling engineering as a profession is more difficult than selling electric house heating in a cold climate with a 5¢-per-kwhr rate.

The Kids Must Be Sold . . . Let's consider an engineering education as a product. It must be sold not to high school graduates but to junior high school graduates. It must be sold to kids who don't know what it is and aren't interested because they won't want to use it for at least five or six years. In addition the product is costly and can be obtained only with much effort and hardship. No wonder the sales have been low. This is a product which must be pushed with a strong sales campaign backed by all the skills and tools of salesmanship.

The industry is beginning to realize this. Here are same of the steps that have been taken:

Central Hudson Gas & Electric Corp has been giving high school students a three-week information course every summer. The boys are paid, and one is given a scholarship award to study electrical engineering (EW, Sept. 29, 1952, p 22).

In Massachusetts two engineers on the staff of Stone & Webster Engineering Corp are conducting a weekly radio program, "The Romance of Engineering," for the Massachusetts Society of Professional Engineers (EW, Oct. 12, p 16).

Advertising May Be the Best Method . . . But these are big expensive programs. One utility, however, has come up with a rather inexpensive plan which can easily be followed by every power supplier in the country. The utility, Alabama Power Co, has decided to advertise. Recently it placed a 5-col by 16 in. advertisement in the newspapers. The headline read, "What are the great fields of opportunity in engineering?" Five pictures illustrated engineers in five major engineering fields at work. And here is the copy:

"It's not too early for high school boys—and girls too—to be thinking about a future in engineering. Decisions made now are important, for only basic high school courses in math and science can pave the way to specialized training in college. There will be adventurous and well-paid jobs waiting for them in all the fields pictured and the many other types of engineering where the need for trained men is acute. Each of them offers a wide choice of truly creative work at starting salaries well above the average.

"And America's growing technological progress promises that demand for trained men will remain high over the coming years. Don't foreclose on the future. Find out for yourself the immense possibilities of an engineering career. See your high school guidance counsellor, your mathematics or science teacher; or write to the Engineering Manpower Commission of the Engineers Joint Council, 29 West 39 Street, New York 18, N. Y., for the free booklet, 'Engineering as a Career.' "

Perhaps not many high school or junior high school students read this ad, though no doubt many of the better type—the type likely to become engineers—did. But there can be no doubt that many a parent read it. And it is not going to do the industry any harm having the parents selling the engineering profession to their sons.

TECHNICAL NOTES

ARCHER E. KNOWLTON

Sidewalk area is the location preferred by practically all utilities for secondary network vaults.

Covering grounds as well as live wires adds to pole-work safety but how does one cover the back end of a through bolt?

Ground resistances are lower with eight-foot rods than with 20-ft rods if measured immediately after driving. However if measured 30 days later, or after soil has had time to pack around the rod for good contact, resistances are lower with the 20-ft rods.

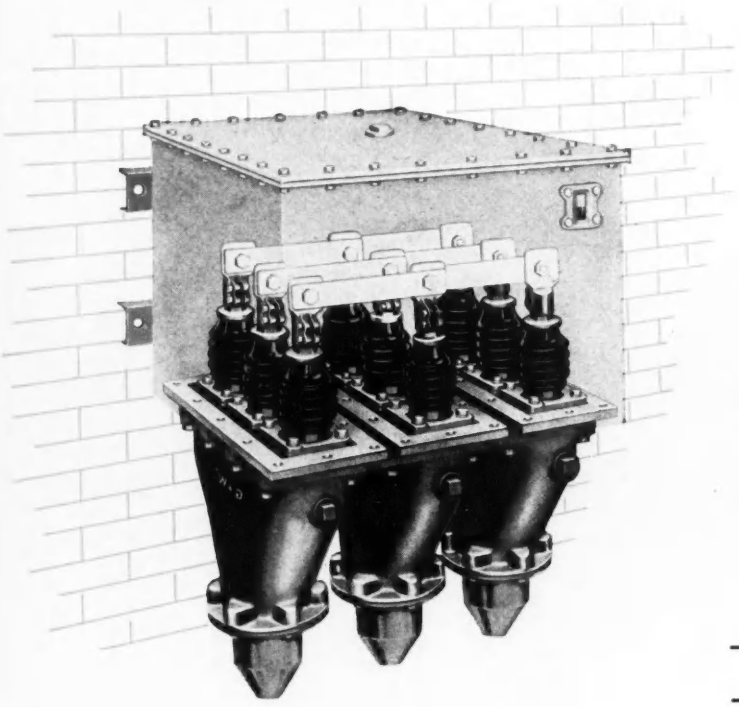
Insulation-resistance measurements of capacitors with internal shunt resistors tell little about the capacitor dielectric.

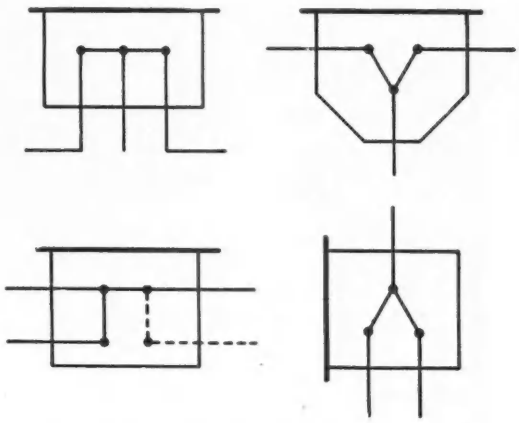
Ceramets or cermets are mixtures of ceramic materials and metals combined by powder-metallurgy techniques to produce something capable of standing the high temperatures to which gas turbine blades are subjected.

For short transmission spans on wood structures 18/1 ACSR stranding of 397 mcm is being used instead of the usual 26/7 stranding to cut costs and save 115 lb of conductor per 1,000 ft.

Signal-to-noise ratio and intermodulation of the channel determine the number of services of any class that can be applied by multiplexing carrier telephone or microwave channels by means of audio-tones.

DON'T CUT THOSE CABLES!
SAVE TIME AND MONEY BY INSTALLING
TYPE "OL" CABLE BOXES TO PROVIDE
DISCONNECTING LINKS FOR SECTIONALIZING.





"OL" CABLE BOXES

Heavy welded steel boxes with "Resistoyl" gasketed covers. Fitted with unit compound filled potheads for complete protection of cable ends. Location of potheads varied to suit installation conditions.

Boxes are filled with oil (or Askarel)—for minimum size and best electric characteristics.

"OL" boxes meet many requirements for non-load break sectionalizing and stop joint connection of cables up to 66 Kv.

Send for new Bulletin BA52 on CABLE BOXES. (Page 10 lists "OL" boxes rated 15 Kv).

A SKETCH OR OUTLINE OF YOUR INSTALLATION CONDITIONS TOGETHER WITH YOUR CABLE DATA WILL BRING YOU OUR QUOTATION ON SUITABLE "OL" BOXES

G&W ELECTRIC SPECIALTY CO.
7780 Dante Avenue, Chicago 19, Ill.
Cable Terminating, Connecting and Sectionalizing Devices
Representatives in principal cities of U. S. A.
In Canada—Powerlite Devices, Ltd., Toronto and Montreal

How to Increase

Field Proved Mechanism

You get a time-tested mechanism in Allis-Chalmers distribution regulators. For twenty years in thousands of applications this mechanism design has proved itself as the most efficient means of changing taps under load. Laboratory tests show it can withstand over 5 million operations — equivalent to more than a century of operation.

Long-Life Contacts

An important reason why you get satisfactory regulation with a minimum of trouble from A-C distribution regulators is their long-life contacts. Made of arc-resisting materials, contacts are of large size. Laboratory tests prove that they can stand up under the equivalent of forty years of normal operation.

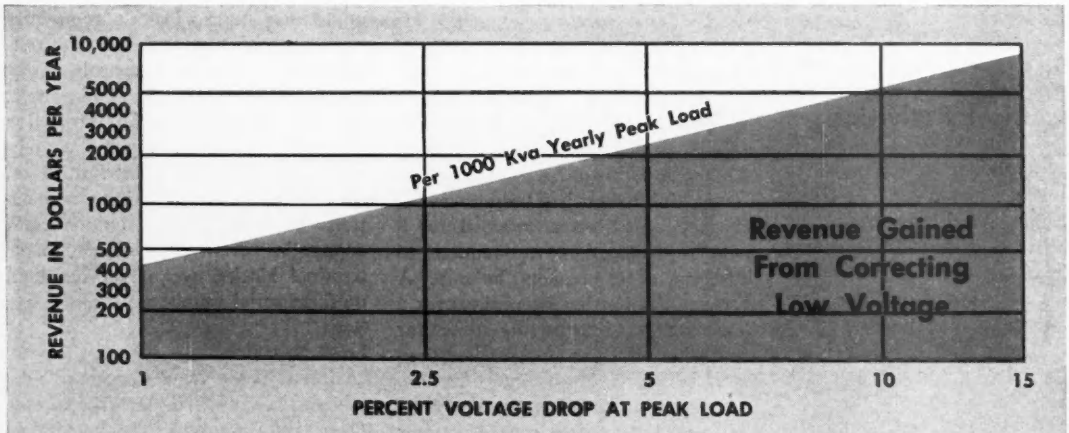
System Revenue

YOU CAN INCREASE PROFITS on nearly every feeder by improving voltage with Allis-Chalmers distribution regulators. The chart shows how accurate voltage within a narrow ± 1 volt band pays off. And the cost is low. Users report that in most cases regulators will pay back their cost within two years.

Best of all, adding Allis-Chalmers distribution regulators to your system is as easy as it is low-cost. You can hang them on a pole right near the load — or put them on a platform between poles. Some users mount them on simple foundations right next to the substation transformer.

It will pay you to get all the facts about Allis-Chalmers distribution regulators from your nearby A-C district office. Or, write Allis-Chalmers, Milwaukee 1, Wis.

A-4182



Assuming: 90% Power Factor; 40% Load Factor; 50% Lighting Load; Energy Charge: 3¢/kwhr; Average Lighting Load Drop — 70% of Peak Load Drop; You can interpolate directly for other loads.

ALLIS-CHALMERS

Unit Construction

You get assurance of years of satisfactory service from A-C distribution regulators, thanks to unit construction. All connections are made and thoroughly inspected before tanking—assuring top-quality workmanship. Same feature makes untanking and inspection easy because core, coils, cover, and control form a single unit.

Simplified Maintenance

You don't need highly trained servicemen to handle Allis-Chalmers distribution regulators. Take the control, for example. It is simple. Knobs are calibrated and easy to adjust. If needed, you can remove and replace the entire control merely by pulling a single jack plug — there are no other connections to break.

Association of Edison Illuminating Companies Meeting

(Continued from page 9)

pose of the study, he said, was to check the feeling toward Con Edison, the cost of electricity, and private versus public ownership of the company as well as to determine appropriate advertising policy. Delafield reported that 85% of all households thought that Con Edison was trying to do a good job compared with 80% three years ago.

This year 77% of the people thought they were getting their money's worth compared with 69% in 1950, the Con Edison vice president pointed out. There was an increase from 49% in 1950 to 58% this year who thought private industry should own and operate Con Edison, he said. The most disturbing fact uncovered, he noted, was that almost two-thirds of all household heads do not realize that the utility rates are publicly regulated.

Technical Activities

Power Generation . . . Highlights of the technical committee activities were presented to the association by the respective chairmen. In reviewing the progress in power generation, B. C. Mallory reported that the average size of generating units ordered in the past year was 127 Mw compared with 87 Mw for the two previous years. All but one of the units over 100 Mw are designed for reheat, he said. Of 45 reheat units, 22 have steam temperature of 1,000/1,000 deg F; 6 of 1,050/1,000 deg F; 16 of 1,050/1,050 deg F; and the maximum was 1,100/1,050 deg F.

In discussing the question of whether to install tandem-compound or cross-compound turbines for 200 Mw and larger sizes, Mallory said that of the two, the cross-compound is the more efficient but it costs more.

Air Pollution . . . Public sentiment will establish the standards of performance in the control of air pollution according to A. L. Penniman, Jr. His committee called upon the industry to:

1. Support the Air Pollution Control Association as an effective agency for the promotion of fair and reasonable regulation at the local level.

2. Cooperate in efforts toward improving the public knowledge of air pollution problems and support research devoted to that purpose.

3. Foster research to obtain fundamental information about those factors which influence the satisfactory utilization of coal and oil as fuel.

4. Adhere to the policy of "police yourself" on a company and on an industry basis.

Electric Switching and Switchgear . . . W. F. Wetmore reported that metal clad circuit breaker performance records show a downtrend in number of defects. It is most marked in equipment above 10 kv, he said. Wetmore also pointed out that, as systems grow, increasing momentary currents are encountered. The effect of contact design in meeting these high duties was demonstrated by tests on a 161-kv disconnecting switch. He noted currents in the order of 100,000 amp were carried successfully.

In reviewing committee and industry activities, Wetmore said that the ratio of momentary current ratings to maximum interrupting current ratings for circuit breakers had been reviewed. The ratio of 1.6 was retained for 8 and 5 cycle breakers but reduced to 1.5 for 3 cycle breakers, he said. A recommendation has been made for a limitation on interrupting time for circuit breakers for currents less than 25% of rated interrupting current. It has been proposed that interrupting time be not more than 4 cycles greater than the rated interrupting time.

Engineer Shortage

Power Distribution . . . "Perhaps one of the most critical problems which faces the industry is the shortage of engineers, and the disinclination of engineering graduates to become associated with our industry" is quoted from the report presented by C. J. Beller. He also pointed out the need for greater attention to selection, training, development, and utilization of key engineers.

The committee recommended support for a wood pole research program being undertaken by the American Society for Testing Materials. Beller also reported the ninth edition of Specifications for Impregnated-Paper-Insulated Lead-Covered Cable, Solid Type is nearly complete.

Other committee studies include defects in cable attributable to manufacture, use of aluminum conductors, specifications for capacitors for power systems, and trends in transmission and distribution system design.

Report on Metering

Metering and Service Methods . . . For the committee on Metering and Service Methods, H. H. Marsh, Jr, reported that, in 1952, 83% of the meters installed were 3-wire, 93% 15 amp, and 73% socket type.

The committee is planning to study ampere ratings of watthour meters and consider need for use of proposed 25, 30 and 50-amp ratings to replace those of lower ratings. Other committee studies include economics of meter testing, area vs due date testing, meter department records, meter obsolescence, meter test tolerances, service rules, corrosion and protective coatings, standardization of detachable meter mountings, standardization of A-base meter mountings, connections between brass, aluminum and copper in metering equipment, meter terminal blocks, cyclometer registers, uniform serial numbers.

Load Research . . . C. M. Turner, chairman of the Load Research Committee, summarized the important studies of his group. He stated that "this year the committee's report is devoted to studies made of commercial and industrial loads and that next year's report is to include information on power factor of domestic appliances and loads."

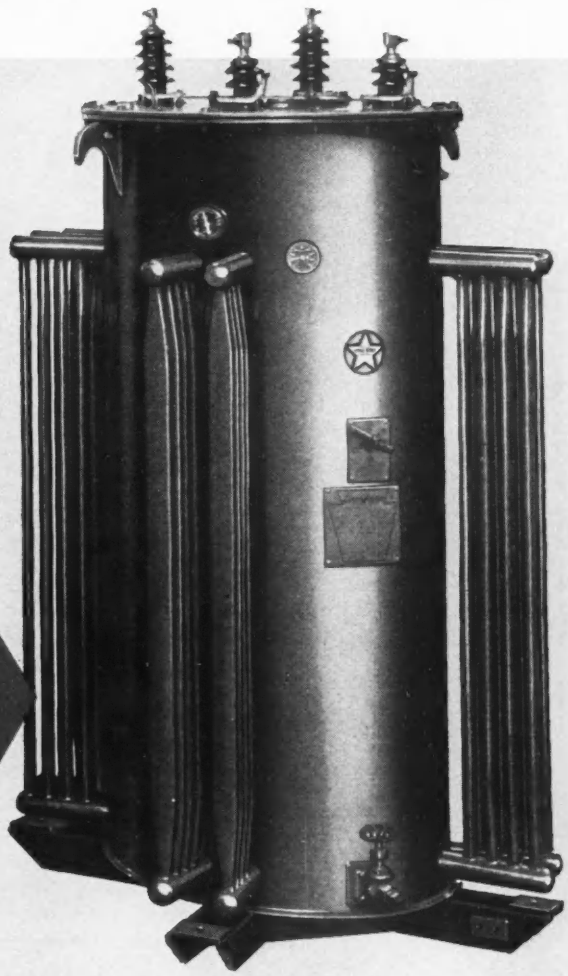
Turner pointed out that "the zone of opportunity" for adding current usage without corresponding peak demand was with customers having load factors between 30% and 70%. In this range there is little change in the coincidence factor, he said.

In commenting on house heating, Turner said, "unless there is some way of controlling saturation, a load of such characteristics could become of sufficient weight seriously to affect the utility's investment." He added, "there is relatively little diversity among house heating customers and the annual load factor is in the neighborhood of only 20%."

A TON of Copper, Oil and Steel saved in NEW 500 kva POLE STAR

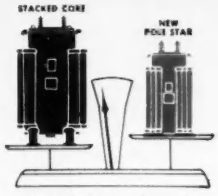
YES, the new 500 Kva Pole Star weighs 2200 pounds less than the 500 Kva stacked core transformer it replaces. This means that vitally-needed supplies of copper, steel and oil are saved in the manufacture of Pole Star transformers without sacrificing any of the efficiency or life of these transformers. On the contrary, the smaller and lighter-weight Pole Star transformers are more efficient and more economical to operate, in addition to being less costly to store and easier to install.

Pound for pound and inch for inch, the Pole Star delivers more Kva than hot-rolled steel stacked core distribution transformers. This means you can replace your small Kva transformers with larger Kva Pole Stars with little or no increase in size or weight, and, in most cases, at very low changeout cost.



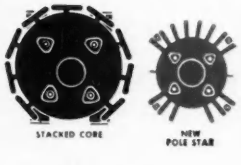
HERE'S HOW THE NEW 500 KVA POLE STAR COMPARES WITH THE OLD 500 KVA STACKED CORE TRANSFORMER

Exciting Current reduced 75%



Weight reduced 2200 pounds

Oil Volume reduced 35% 125 gallons



Floor Area reduced 20%

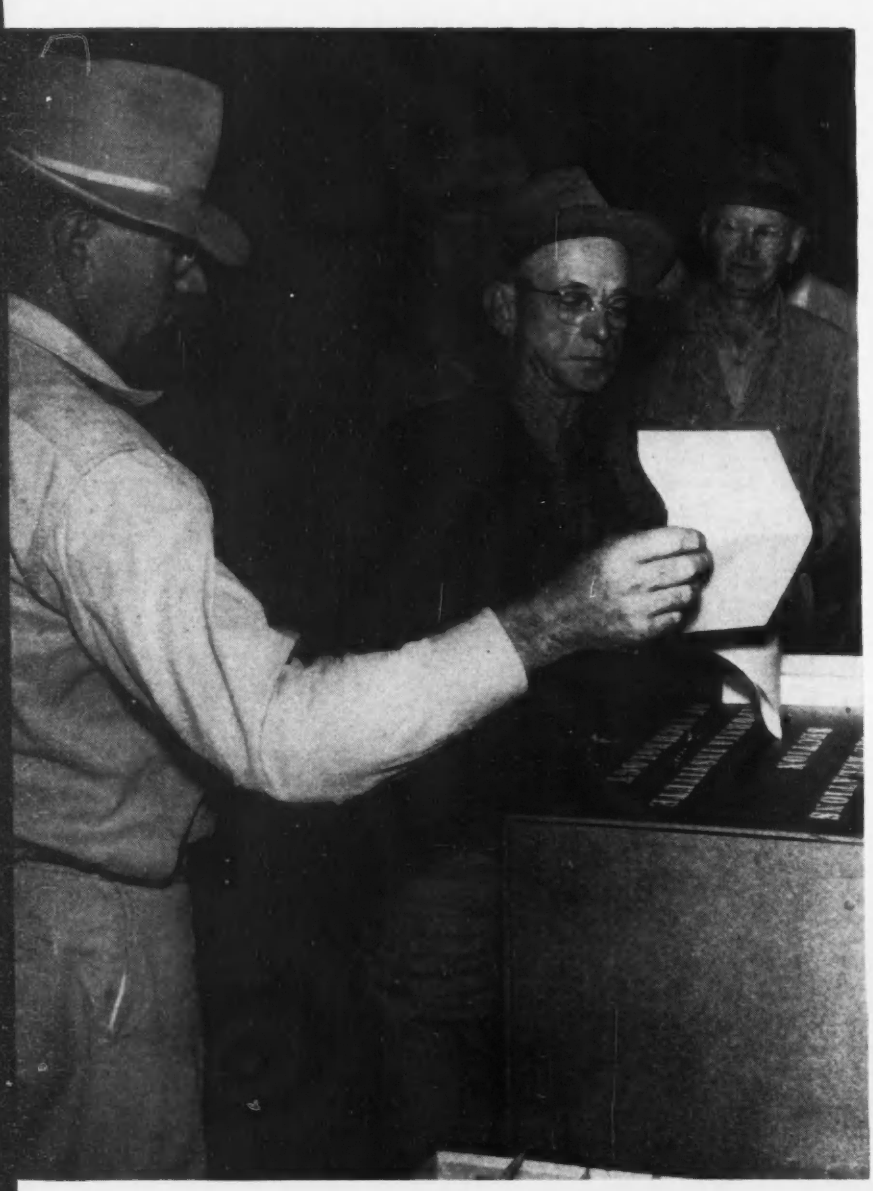
PENNSYLVANIA POLE STAR TRANSFORMER

PENNSYLVANIA TRANSFORMER COMPANY

BOX 330, CANONSBURG • PENNSYLVANIA

Greater Pittsburgh District

San Diego G&I



SECRET BALLOT was conducted for power company by California Institute of Technology. Here employees tell management what they think about conditions and offer suggestions for improvement

M. E. Nelson, director of industrial relations for San Diego Gas & Electric Co who has just been through one, thinks the most important prerequisite to an employe opinion survey is that top management be prepared to do something about the answers.

"Otherwise," he explains, "indicated corrections may not be accomplished. And in that case employee morale is worse off—if you publish the results of the survey—and you should."

That doesn't mean that SDG&E is going to do something about every one of the 3,380 unfavorable comments and 1,290 suggestions it rereceived in the survey it conducted among its 2,200 employees. (There were 3,749 "favorable" comments for a total of 8,419 entries in the "comment" column of the survey form).

But right now the management council, made up of Board Chairman

ANONYMITY was the keynote of the opinion survey. At right, Caltech representative explains no one in company will see the ballots, which were unsigned. Far right: The workers express themselves

Puts Itself Up for Trial by Ballot

L. M. Klauber, Pres. E. D. Sherwin and eight other top officials of the company, is holding weekly meetings to discuss the survey findings. They have been doing it for some weeks, and already these decisions have been made and put into effect:

- Wage increases have been put through for a series of office employees, not covered by union contracts, after survey answers prompted management to compare its rates with those of other companies in San Diego in comparable classifications.
- The survey showed that 62.5% of SDG&E employees thought the firm's wage rates were lower than other companies in the area. The company felt that part of this feeling was the result of lack of information, which it is attempting to remedy, but since the survey it has effected a 5% general wage increase for both employees covered by union and those not so covered.
- Some 418 employees listed 652 working conditions as "disagreeable". The company has taken steps to eliminate many of these which are controllable, especially such items as office lighting and ventilation. Nelson admits he made no attempt to remedy the complaints of three individuals who listed, in order:
  1. Hot weather
  2. Rainy nights
  3. My boss.
- A large number (not a majority) of employees checked that they felt selection of workers for promotion was often based on favoritism or some factor other than suitability. The company has instituted a study of this situation, and at the same time has taken steps to see that employees considered for promotion, but who do not get the jobs, are given a full explanation of selection factors.
- Women employees complained of favoritism in that many men employees were permitted to smoke on the job while women were not. A management letter has now gone out announcing. "Employees engaged in occupations not requiring contact with the public are permitted to smoke on the job, provided it does not interfere with the performance of their duties, or create a hazard."

Morale Factor . . . Generally Nelson and the management council have been pleased with the morale condition they found as a result of the survey. It was typified, Nelson says, by the written comment of one employee:

"The fact that this survey is undertaken is an indication that top management is interested in doing a better job."

Nelson reports that the survey confirmed management opinion in many

FOR 15 SPANISH-SPEAKING EMPLOYEES, company provided an interpreter. Answers such as, "A mi me gusta trabajar en esta compania porque es un trabajo constante," were translated "I like to work in this company because it's a steady job"

cases about conditions which needed remedying. But the survey also indicated areas where work needed to be done—conditions the company did not realize existed.

In addition to the weekly meetings of the management council to study the results of the survey the company is sponsoring frequent departmental and company-wide meetings of supervisors at which findings are discussed and supervisors are briefed on what changes will be ordered and what new attitude may be sought from supervisors.

In preparing for the survey here are four rules Nelson set down for himself as guides:

1. The questionnaire must avoid leading questions or questions on which—if you get unfavorable answers—you are not prepared to take action.

2. Don't expect impartial results before, during or immediately after wage negotiations; or before or after a strike; or right after having granted a fringe benefit. Try for a time of normalcy.

3. It is imperative that top management give full approval and support. Otherwise indicated corrections might not be accomplished and employee morale would not only fail to benefit but would decline.

4. There must be adequate assurance to the employee of anonymity.

At San Diego the survey was conducted by the industrial relations section of the California Institute of Technology at Pasadena.

Employees were prepared for the survey first with a letter a week before the program started. The letter stressed that there would be absolutely no identification.

In Meetings Assembled . . . The work of filling out the survey forms was handled at a series of employee meetings. At each meeting an SDG&E official introduced the Cal Tech representative in charge and reiterated the company's desire not to know the identity of persons filling out the questionnaires.

Reports on the survey to the employees explained again that the company never saw the originals, that its information came in the form of compilations and typed copies of comments.

The response was 99% of the 2,200 employees eligible indicating to Nelson both that the company put over the point of non-identification and that its system of getting employee participation was adequate.

What's Behind It? . . . Why does a utility management undertake such a survey?

In the case of San Diego Gas & Electric it was because both top management—Klauber and Sherwin— and Nelson as head of industrial relations —felt that anything they could do to boost employee morale would in turn boost production and provide a better return on investment.

These officials had been weighing the survey idea for some time. They wanted too to check on what the union — the International Brotherhood of Electrical Workers—was telling management across the bargaining table about employee sentiment on wages.

"The answers on wage questions indicated some employees felt that there was something more to be desired," Nelson admits. He adds: "The union may use this against us in negotiations. We ran that risk with full knowledge of the possibility. But we feel it was worth while for us to get the authentic information."

A factor in SDG&E's decision to go ahead with the survey was the success which three other California utilities have had with the plan. Coast Counties Gas & Electric, in the San Francisco area, did it in 1952. Southern California Edison Co in the Los Angeles area ran surveys both in 1950 and 1952. And Southern California Gas Co, Los Angeles, conducted such a survey earlier this year.

"It's simply that we can find out what things are bothering the employes and then improve them," says Nelson. "We threw the whole thing wide open with the last question, in asking for comments. That, too, involved a risk. Suppose every employee had asked why there was no Christmas bonus plan.

"We could have asked that question if we had felt the company was in a position to do something about it. We didn't. But that is the chance you take in allowing a wide open question. And it was worth it. The general comments section was probably the most beneficial part of the whole survey."

And sure enough, the tabulation of general comments contained this one:

"We should get a Christmas bonus."

But it was an isolated one.

Quite a number of employees suggested establishment of a suggestion box system. The company is still thinking that one over.

Others suggested sale of stock to employees at a reduced rate, and a company system of selling appliances to employees at lower prices. Both were acted upon quickly—the first in connection with a recent stock issue, and the second through establishment of an Employees Appliance Center.

Then there were others like these that haven't been acted upon:

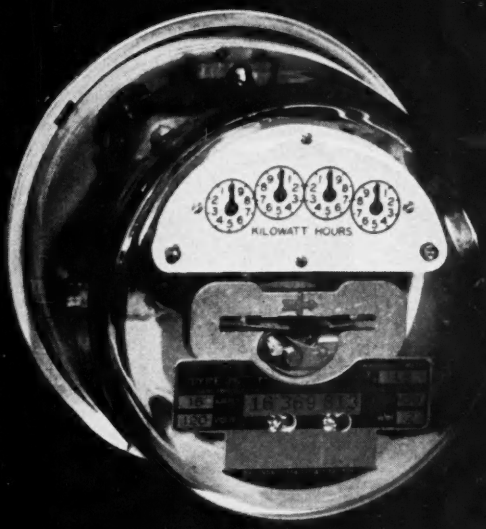
"I wish it were possible to give employees a discount on light bills."

(Continued on page 31)

by every measure of value... it's good business to buy...

Sangamo J Meters

Sangamo . . . Good Meters Since 1899



Sangamo Type J . . . Performance-proved by thirteen years of service

For thirteen years J Meters have met and exceeded every requirement of performance for the Utility Industry that has been imposed by continuously growing loads.

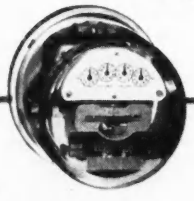
These thirteen years of satisfactory service are a measure of proof of the electrical and mechanical stability of the J Meter—the design that mounts the moving element, damping magnets, register, and the electro-magnetic system on a single rigid frame.

These thirteen years have also proven the ability of the J Meter to sustain accuracy, reduce operating costs, save maintenance expense, and provide ample capacity for the load growth of this period.

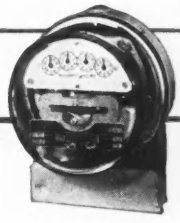
Thus, by every measure of value it's good business to buy Sangamo Type J Meters.

SANGAMO

SANGAMO
ELECTRIC COMPANY
SPRINGFIELD, ILLINOIS

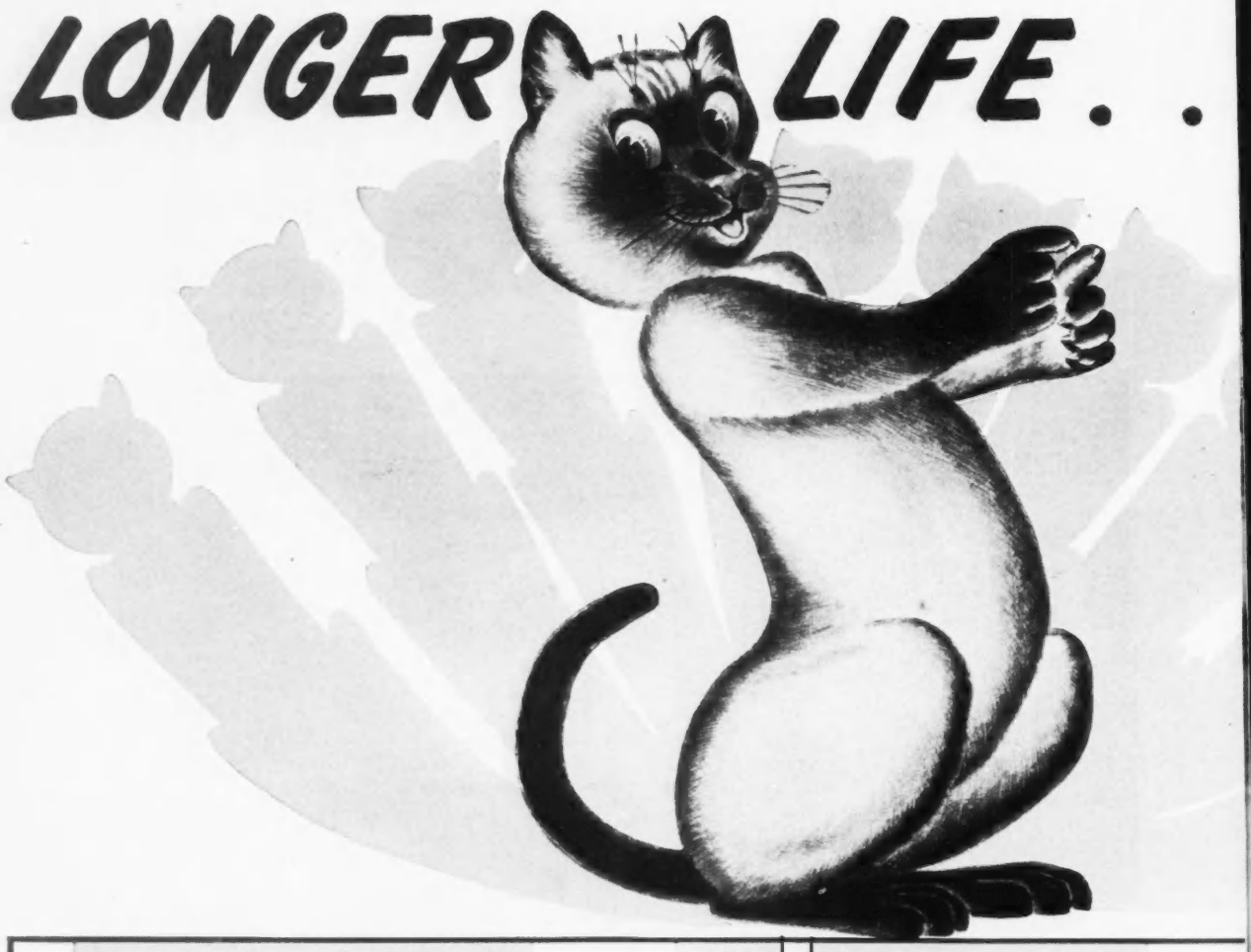


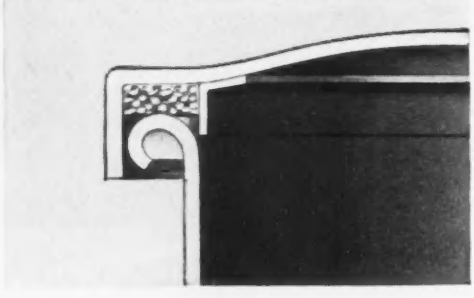
Only Measured Facts are Known Facts



JM53-8

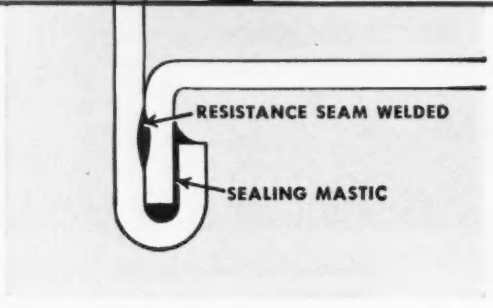
LONGER LIFE . .





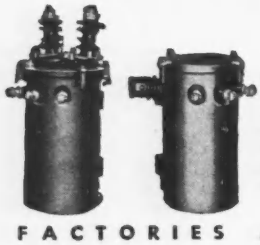
SEALED TANK CONSTRUCTION

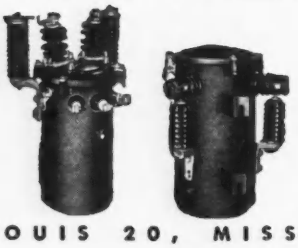
Sealed tank construction prevents entrance of moisture and air, greatly increasing the life of the oil and insulation. Illustration shows how cover gasket is retained and compressed to obtain a tight leak-proof seal.



WELDED AND ROLLED LIP ON TANK BASE

Tank base is pressed into tank shell and resistance seam welded. Sealing mastic compound is applied and the extending portion of the tank base is rolled in to provide triple protection against mechanical abuse.





Moloney HiperCore Distribution Transformers are available in all standard ratings from 3 Kva up in both Conventional and CSP designs.

MOLONEY

Manufacturers of Power Load Ratio Control Transformers

FACTORIES AT ST. LOUIS 20, MISSOURI AND TORONTO,

HiperCore TRANSFORMERS

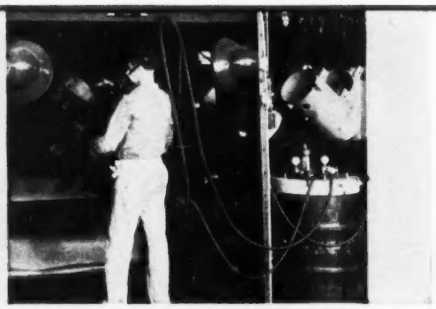
The cat has a reputation for nine lives because he has the natural ability to overcome extreme hazards and recover with a bounce. This is as much a part of the cat as is the high "margin of safety" built into Moloney Transformers.

Moloney Transformers have a reputation for long life every bit as good as the cat's. The superior design and craftsmanship of HiperCore Transformers permit quick and safe recovery from sudden overloads and voltage surges and thus provide dependable service under the severest conditions.

These qualities, proved by actual operation records, mean that you can equip your system with the high "margin of safety" afforded by Moloney Transformers. The superior engineering, design and fabrication know-how, that have been the mark of Moloney for more than 50 years, result in better performance, longer operating life with less maintenance.

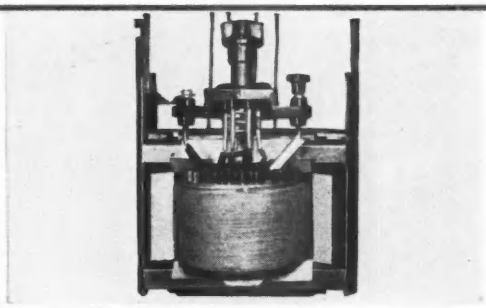
Moloney is better . . . all along the line.

ME53-43



TANK FINISH

Tanks are spray-painted, after thorough sand blasting with an alkyd melamine paint especially developed for Moloney Transformers. Each coat of paint is baked on. Resultant protective surface is durable, highly resistant to chipping, scuffing, and severe weather conditions.



GREATER MECHANICAL STRENGTH AGAINST SHORT CIRCUIT FORCES

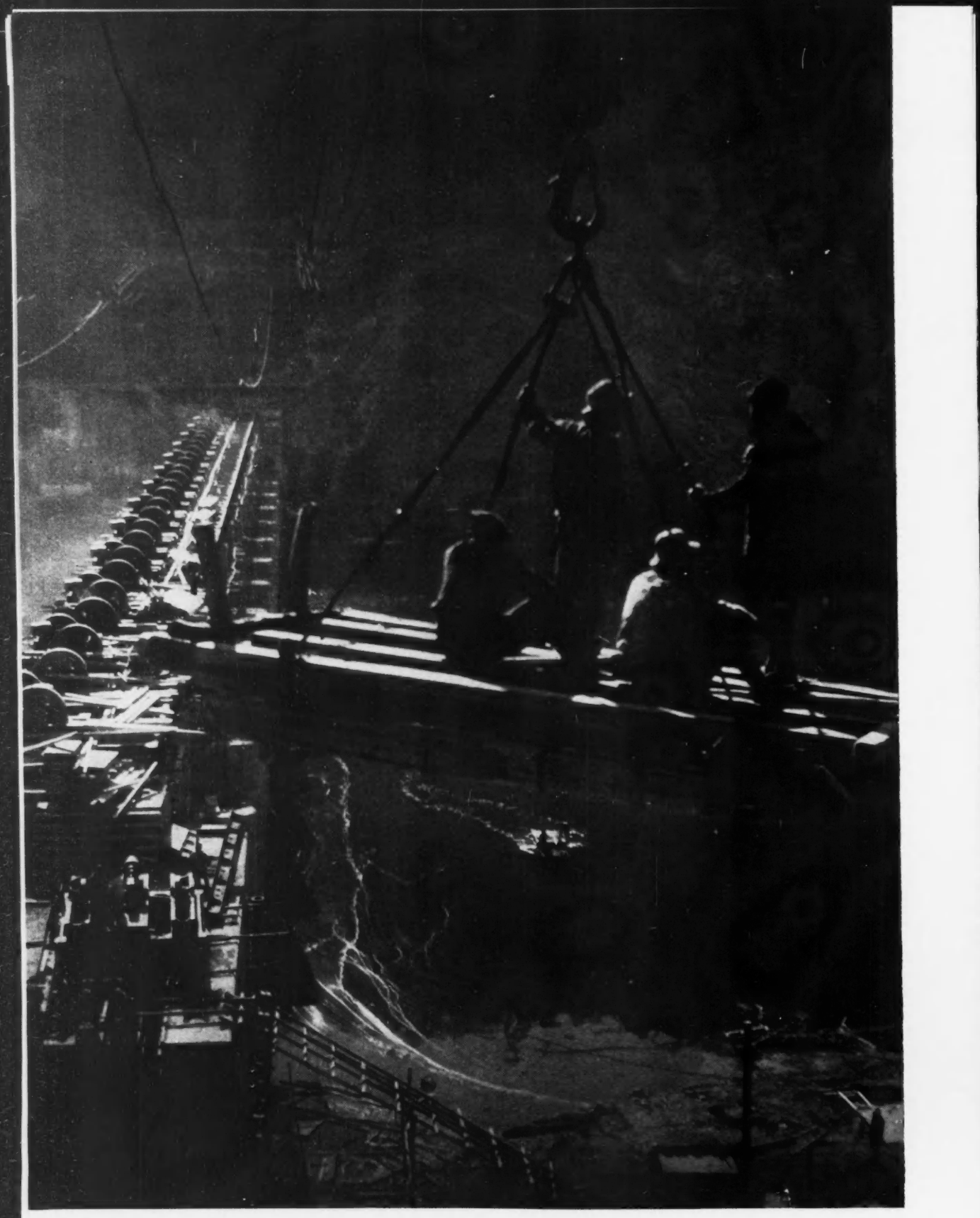
Coils are made mechanically rigid through the use of heat curing bonding material. The coils are blocked solidly by the impregnated core which is in turn banded with tons of force, providing maximum strength against short circuit forces.

ELECTRIC CO.

Transformers • Distribution Transformers
Step Voltage Regulators • Unit Substations

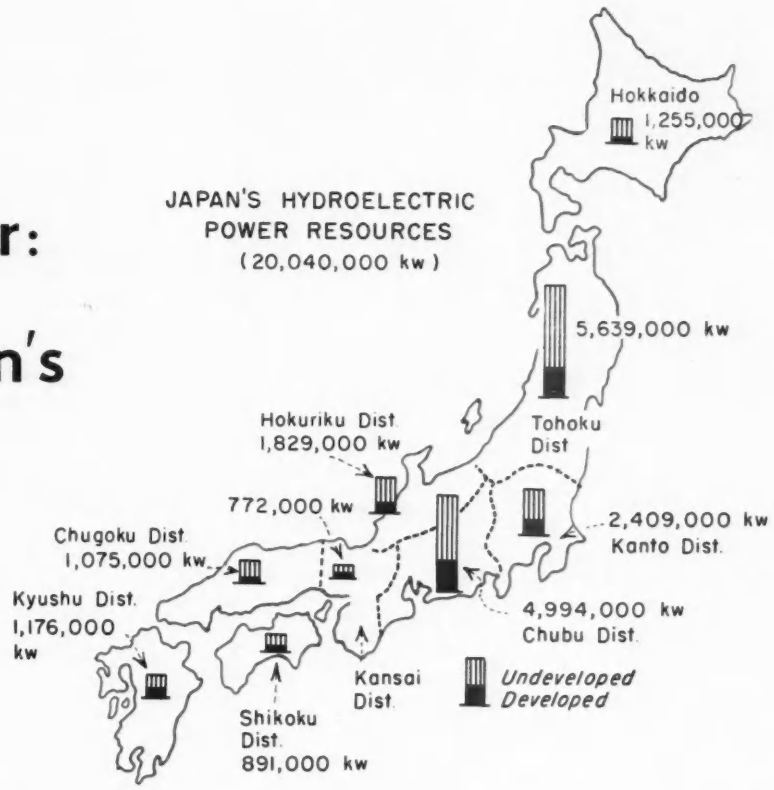
BETTER PERFORMANCE
GREATER RELIABILITY
LESS MAINTENANCE

ONTARIO, CANADA • SALES OFFICES IN ALL PRINCIPAL CITIES



JAPAN'S INDUSTRIAL RESURGENCE depends largely on her new hydro developments, such as that at Hiraoka Dam

Hydro Power: Key to Japan's Economy



Japan is rich in hydroelectric power potential because of her topography. In fact, hydro is the only natural resource she has in abundance. And yet she suffers from power shortage every winter. Power is stopped two or three days a week in dry seasons. Reason is that her only natural resources have not been well developed.

Japan's hydro-electric power potential is estimated at approximately 20 million kw, but only 6.8 million kw or about one third of the potential has been developed so far. Furthermore, only one third to one half of the developed capacity actually can be generated in dry seasons and winters. Thermal power is used largely to supplement this seasonal decline of hydro power. This is particularly true in the eastern half of the country.

At present, there are 1,420 hydroelectric power plants with the combined capacity of 6,829,000 kw representing 62.7% of total electric power capacity and 276 thermal plants with a combined capacity of 4,096,000 kw representing 37.3% of the total. Japan has the fourth largest power capacity, with the U. S., Britain and France in first, second and third places.

Most of these power plants—1,264 hydro plants and 85 thermal—are owned by nine electric power companies. These were established on March 1, 1951 when the American occupation broke up the war-time monopoly of the Japan Electric Power Generation and Transmission

POWER from plants such as Kurobe Third, highest in islands . . .

. . . is routed throughout the country from this supply center

HYDRO UPSURGE affects all the people. Here peasants are forced to tear down their houses and move out to escape new reservoir's rise

Co. or Nippon Hassoden, as a step for economic democratization of the country. The rest are owned by private industrial firms and used for internal consumption.

Demand Up, Supply Short . . . Demand for electric power has grown rapidly since the end of the war, however. Supply is already short, and demand must be restricted. As a result, the government allocates electric power to consumers. For example, it allocated the 12,321 million kwhr expected to be available during the period from April 1953 through March 1954 to large consumers classified into 25 groups. Of these 25, four categories of industries—railways (private and national), coal mining, iron and steel, and fertilizer manufacturing— are to take up 68% of all available power. Largest single consumer is chemical fertilizer manufacturing which takes up 3,471 million kwhr followed by the iron and steel industry which takes up 1,664 million kwhr.

Supply of electric power in December 1952 was 5,670,000 kw while its unrestricted demand was estimated at 7.8 million kw and is expected to reach 10,170,000 kw in five years.

To fill this gap, the government recently has made up a tentative plan calling for the development of 5,460,000 kw (3,980,000 kw of hydro and 1,480,000 kw of thermal). To push this plan, the semi-governmental Electric Power Development Co was established recently under the Power Development Promotion Law which was promulgated on July 30, 1952.

This company, headed by Tatsunosuke Takasaki and financed by the government, is to build large dams and power stations which are beyond the capacity of any of the nine power companies or of the prefectural governments.

Costs Spread . . . The development plan requires the fund of 824 billion yen ($2,290 million) in six years from 1952. Of this total, 661,140 million yen is to be borne by the nine power companies, 124 billion yen by the development company, 38,265 million yen by ten prefectural governments concerned and 29,350 million yen by private firms.

As of mid-1953, 48 dams and power stations were being constructed by the nine power companies, 14 by the development company, 13 by ten prefectural governments and the same number by 11 private industrial firms. Many more are under study.

Of these projects, the Tadami River dams at the border between Fukushima and Niigata prefectures are becoming a hot political issue on account of their importance in the future supply situation of electric power. This river is rich in hydroelectric power potential, comprising about 10% of the national total potential of 20 million kw.

At present, there are seven power stations along this river with the combined capacity of 455,200 kw and 12 new stations with combined capacity of 1,447,100 kw are either under construction (dams for Yanaizu and Katakado stations have been completed very recently) or being planned. Both Niigata and Fukushima prefectural authorities want as many of the new stations as possible in their own prefectures, and their competition for them has developed into a political scandal.

One Fukushima station is causing a "Buy-Japanese" furor among domestic manufacturers. The development corporation plans to import large construction machinery valued at $5.3 million from the United States to be used in building Tagokura Power Station there.

The 225,000-kw power station and dam will take four years to build. Despite the manufacturers' opposition, import of the large equipment is expected to be approved by the Ministry of International Trade and Industry as a necessity.

In Balance by 1957? . . . During 1952, hydro and thermal capacity of 390,000 kw was added and after this plan is completed in 1957, supply and demand are expected to balance at 53,400 million kwhr a year.

In view of Japan's poor natural resources and large population, it is generally believed that success or failure of the hydroelectric development is the key to her economic future.

WORKMAN CHECKS water level at Oi Dam in Gifu Prefecture

Cross-country "jogging" proves this transformer can *take it!*

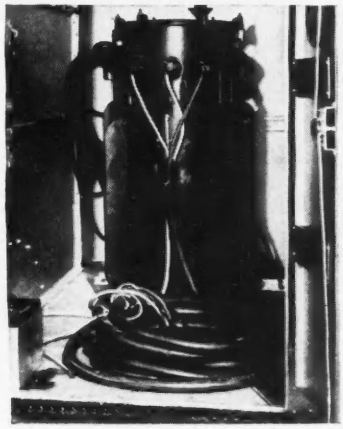
Brockton-Edison's trailer-mounted "CSP®" Transformer gets more jolts and bumps in one day of cross-country service than the average transformer receives in a lifetime. Yet this "CSP" Transformer has performed perfectly every time it has been used to maintain service during emergency or routine transformer change-outs.

Brockton-Edison used "Westinghouse" for their ingenious trailer rig, because they needed an extra-tough transformer for such rugged service. They chose a "CSP" Transformer because its built-in breaker eliminates the necessity for any separately mounted protective devices. All they have to do is make the connection and use the "CSP" Breaker to pick up or disconnect the load.

"CSP" Transformers can take it, whether mounted on a pole or in a trailer, even under the most adverse conditions. Why not prove to yourself that Westinghouse "CSP" Transformers can cut distribution, installation and maintenance costs. Ask your Westinghouse representative for a copy of B-4247-B, *Transformer Costs . . . and their relation to Profits.* Or write to Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pennsylvania.

J-70662-A

Even after miles of hauling over bumpy, rural roads, this rugged "CSP" Transformer gives dependable service. Only normal external transformer connections need be made. The "CSP" Breaker is used to pick up the load.



This 37.5-kva "CSP" Transformer fits compactly into Brockton-Edison's movable trailer because its built-in protection eliminates the need for separate protective devices and excess wiring. This ingenious arrangement simplifies change-outs, with fast service any time . . . anywhere.

YOU CAN BE SURE...IF IT'S Westinghouse

ML
125
50

Helping the industry meet its growing loads

*Thermalastic**... insulation with a memory*

Thermalastic insulation is the latest magic of industrial chemistry to achieve practical application in large motors and generators. Heat it . . . cool it . . . cycle it again, Thermalastic remembers the copper to which it is applied and stays with it. Stretching does not affect its properties and it will always return exactly to its original shape.

The scope of this development challenges the imagination. Thermalastic insulation offers the industry new freedom from shutdowns caused by insulation failure.

Most insulating materials in common use today are considered excellent. But imagine the inherent protection, the vastly improved reliability, in equipment having Thermalastic insulation . . . with its superior thermal stability, outstanding moisture resistance and inertness to chemical contamination and dirt! The high voltage endurance of Thermalastic increases "time to failure" many hundred fold.

The basic materials in Thermalastic insulation are well known, their characteristics proved. The contribution of chemistry has been the development of a synthetic resin that contains the same elements as natural resin with an important molecular change. That, plus a new application technique, produces distinctive qualities that utilize fully the high insulating value of large mica flakes, and maintains them throughout the endless heat cycling that windings must endure. Thermalastic insulation will always hug its copper. It will never migrate or become brittle with age.

Evolved in the minds of engineers, developed in the laboratory, made practical on the production line, Thermalastic insulation is an outstanding example of the progress that Westinghouse offers to help you meet America's power needs.

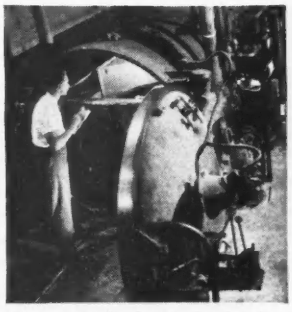
*Trade-Mark J-97176

YOU CAN BE SURE... IF IT'S Westinghouse

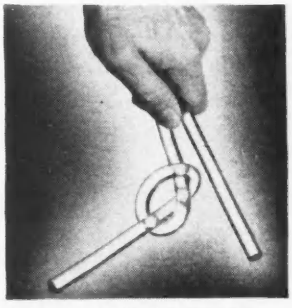
Thermalastic insulation

A chemist's skill at synthesizing, plus an application technique, adds wonderful new qualities to time-proved insulating materials.

Large mica flakes are built into a resilient, flexible tape that can be wound in smooth layers, providing the highest insulating qualities known.



The synthesized resin, having low viscosity, can be made to penetrate the mica completely, leaving no voids between layers, or between mica and copper. Thermosetting, it creates no voids, will not melt.

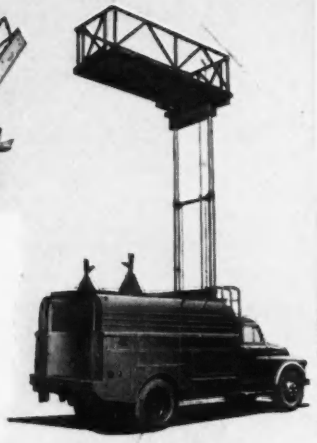


Infinitely elastic, chemically inert, the resin will hold the mica tight to its copper regardless of heat cycling or overload. Unaffected by moisture, it will never become brittle with age.

Lowers Operating Costs

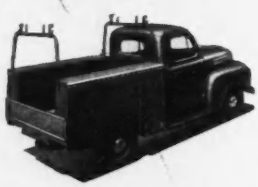
Steps up crew efficiency!

Powers-American bodies do their job faster, more efficiently, and at lower cost, because they're "*job-engineered.*" Each model incorporates design features *proved* by utilities over many years of operation, and is field-tested under actual working conditions by utility engineers *before* production! "*Job Engineered*" means long life and trouble-free service for you, whatever your utility body needs may be. Look to *Powers-American* as *your 1* source for *all* types of utility bodies and equipment.



HYDRAULIC TOWER

Available in models having ground-to-platform heights of 21′, 25′, and 30′, for installation on chassis having 1½ ton capacity or more.



GENERAL SERVICE BODY

½, ¾, 1, and 1½ ton models. Can be equipped to meet any operating requirement.

FORESTRY BODY

For tree trimming and clearing. Also available with winch and derrick for construction work.

REVOLVING AERIAL LADDER

Can be extended to any length, spotted in forty positions throughout a full 360° revolution, and inclined at any angle from 30° to 75°. Easily operated by one man. Safe enough to support 4 times normal working load. Available in sizes having ground-to-platform heights from 23′ 6″ to 32′ 3″.

LIGHT CONSTRUCTION BODY (350)

Fold-over derrick can handle poles up to 40′ in length. Underfloor winch leaves loading area clear.

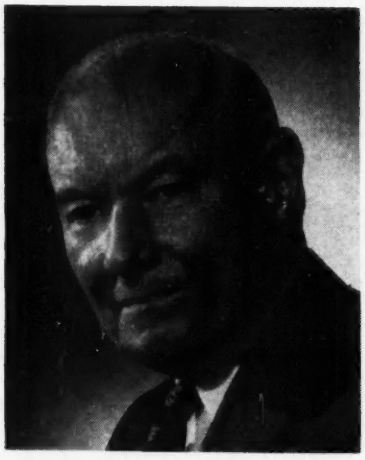
"The Accepted Standard with Utilities Everywhere"

POWERS *American* DIVISION

PUBLIC UTILITY BODIES AND EQUIPMENT

McCABE-POWERS AUTO BODY COMPANY
5901 North Broadway, Saint Louis 15, Missouri

There are many styles of *Powers-American* Bodies not shown here. Write for descriptive catalog today.



W. D. VIRTUE

Virtue Elected . . .

. . . vice president and treasurer of Public Service Co of Colorado

W. D. Virtue has assumed office as vice president and treasurer of Public Service Co of Colorado.

A graduate of the University of Missouri and Westminster Law School, he has been with Public Service and a predecessor company since 1919. He became its chief accountant in 1928, vice president and secretary in 1943, and director in 1948. He was also recently appointed as chairman of the accounting division committee of the Edison Electric Institute.

Virtue was elected treasurer to succeed D. G. Guiney, who resigned after serving 45 years with Public Service and predecessor companies.

Ober, Ceico Senior VP, Retires After 40 Years

Dean C. Ober, senior vice president of Cleveland Electric Illuminating Co, has retired after more than 40 years of service. He had joined the utility on a permanent basis in 1913, after graduation from Case Institute of Technology, with a degree in electrical engineering.

After five years as an electrical engineer, he was advanced to assistant in charge of the company's electrical engineering department. He was named executive engineer in 1933, vice president in 1944, executive vice president in 1945, and senior vice president in April of this year.

•

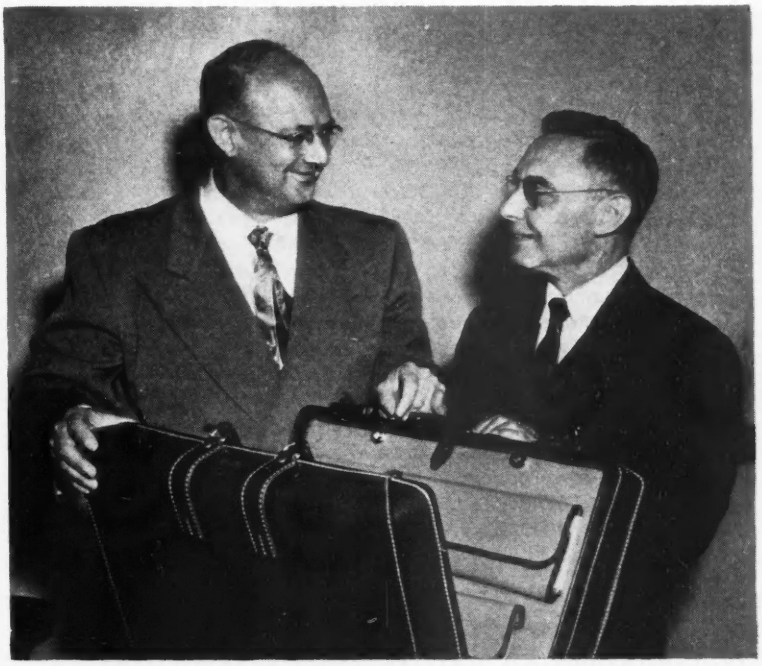
Robert L. Brownlee, manager of engineering administration, Carboloy Department of General Electric Co, has been named plant manager of GE's Distribution Assemblies Department of the Industrial Power Components Division in San Francisco. He joined Carboloy's metals department in 1936.

Arvid Waller has been named manager of the Freeborn-Mower Co-op Light & Power Association, Albert Lea, Minn. He had been acting manager since the resignation of **Lewis Brown** as manager last May. Waller was formerly associated with Mille Lacs Region Co-op Power & Light Association, Aitkin, Minn.

William T. Lowery, since 1950 chief electrical engineer for the Toledo Edison Co, has been appointed to the post of staff electrical engineer. He will act as advisor and staff assistant on electrical engineering problems in the office of P. R. Knapp, head of the firm's operating and engineering departments.

Ernest C. Hathaway has been appointed general commercial manager, Central Vermont Public Service Corp, with headquarters at Rutland. **Chester B. Eaton,** vice president and general commercial manager, now becomes assistant to the president in charge of publicity and promotional activities.

Thomas G. Ayers has been elected vice president in charge of industrial relations for Commonwealth Edison Co, succeeding **Robert F. Creutz,** who resigned because of ill health.

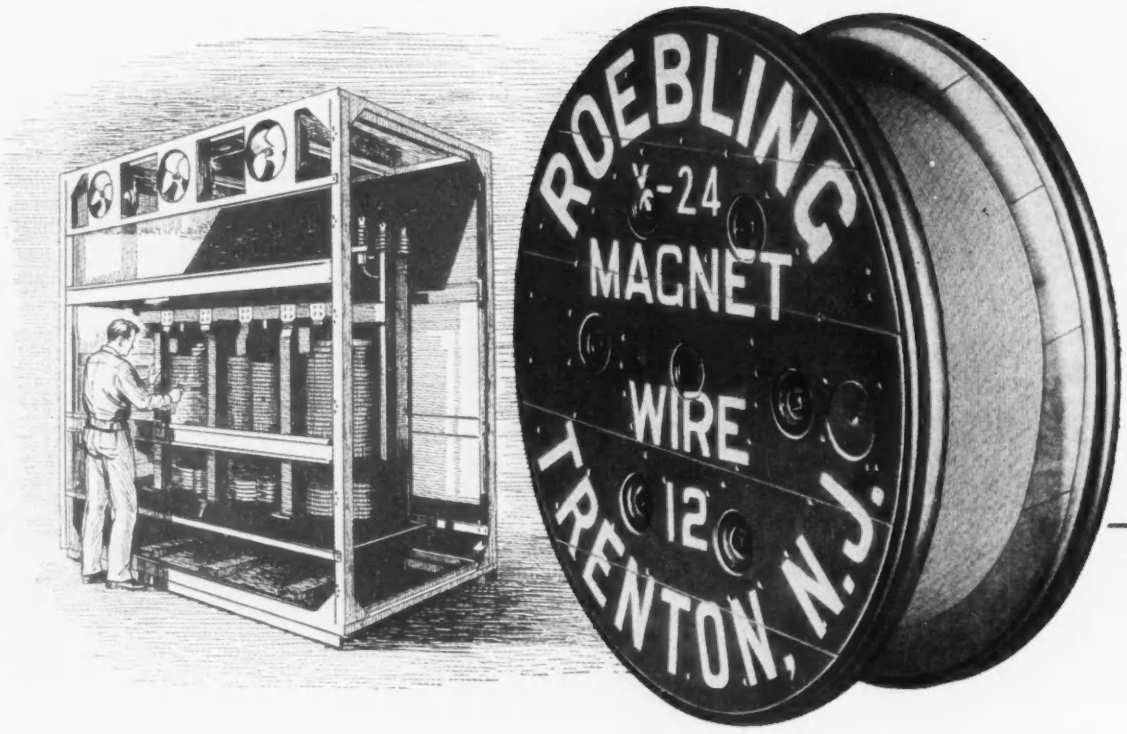


Kreh Cited for Safety Work

Edward J. Kreh, accident prevention manager of Duquesne Light Co, who is retiring Nov. 1 after 43 years service with the company, was recently presented with a gift of luggage by R. R. Phillippe, left, chairman of the Accident Prevention Committee, Pennsylvania Electric Association. Kreh has been active in the PEA, Edison Electric Institute, the National Safety Council, and the Western Pennsylvania Safety Council.

Now...a new high temperature magnet wire...

ROEBLING ROETEMP



ROETEMP MAGNET WIRE brings you a brand new and superior type of insulation for applications that involve high operating temperatures. Its heat-resistant properties and dielectric strength, its extra toughness and working ease make this new Roebling ROETEMP your top choice for Class B, dry-type transformer windings, and for other electro-magnetic devices designed for operation with hot spot temperatures of 130°C (266°F).

Roebling ROETEMP Magnet Wire is insulated with a specially processed tape applied in a single wrap with a liberal overlap. It is exceptionally pliable and bends without cracking or separating from the conductor. It won't unravel; is ideal for higher speed winding; comes in a range of sizes from #1 to #12 AWG, round, square and rectangular.

Write for full data on Roebling ROETEMP Magnet Wire...and Roebling silicone bonded ROEGLAS wires for special temperature problems. John A. Roebling's Sons Corp., Trenton 2, N. J.

A subsidiary of The Colorado Fuel and Iron Corporation

ROEBLING

ATLANTA, 934 AVON AVE • BOSTON, 51 SLEEPER ST & 5 PITTSBURGH ST • CHICAGO, 5525 W. ROOSEVELT RD • CINCINNATI, 3253 FREDONIA AVE • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST • DETROIT, 915 FISHER BLDG • HOUSTON, 6216 NAVIGATION BLVD • LOS ANGELES, 5340 E. HARBOR ST & 120 S. HEWITT ST • NEW YORK, 19 RECTOR ST • ODESSA, TEXAS, 1920 E. 2ND ST • PHILADELPHIA, 230 VINE ST • PITTSBURGH, 1202 GRANT BLDG • ROCHESTER, 1 FLINT ST • SAN FRANCISCO, 1740 17TH ST • SEATTLE, 900 1ST AVE S. • ST. LOUIS, 3001 DELMAR BLVD • TULSA, 321 N. CHEYENNE ST • EXPORT SALES OFFICE, TRENTON 2, NEW JERSEY

V. A. Ainsworth Named Newfoundland Manager

V. A. Ainsworth has been named general manager of Newfoundland Light & Power Co, succeeding H. Forbes-Roberts, who has retired at his own request. The new general manager had held at similar post with Maritime Electric Co, Charlottetown, Prince Edward Island.

Forbes-Roberts had been connected with the power business in various parts of Canada for the past 40 years, spending the last 11 with Newfoundland L&P.

OBITUARY

Samuel R. Bertron

Samuel R. Bertron, for 38 years an executive of Houston Lighting & Power Co and since 1930 its president and general manager, died in Houston Oct. 9. He was 73.

A native of Mississippi, he came to the company in 1915 as its general manager. He had previously worked for several power companies in New York state and in 1913 became general manager of New Orleans Public Service Co.

Under his leadership, Houston Lighting underwent a 100-fold expansion, from a $2 million company. It now serves an area of 5,600 sq mi with a population of more than 1,200,000.

Glenn Worth McCracken, 59, chief electrical engineer for the western division of Alabama Power Co, died this month in Birmingham. He had been with the utility for 27 years.

San Diego G&E's Trial By Ballot

(*Continued from page* 18)

And complaints about working conditions such as:

"Our department has to work in rainy weather."

"Dogs running loose on public streets."

"Too much noise."

Job Satisfaction . . . An analysis of the comments showed 175 general subjects covered. About 22% dealt with job satisfaction and most were favorable. The largest number of these talked about job security. There were 159 comments on lack of opportunity for advancement. Comments indicated general favor for the company's benefit plans. There was some request for more on-the-job training, dissatisfaction with the bid system utilizing seniority alone instead of senority and ability, and many requests for more information through group meetings and from supervisors.

The main portion of the questionnaire dealt with four main topics—personnel benefits and wages, employee communications and publications, supervision, and employee attitudes toward top management and the company.

The lead question on how the employee regards his pay compared with that paid individuals in similar work for other types of business in the area brought a reply that 62.5% of those answering thought their own pay was lower.

But oddly enough, 49.2%, a majority of those answering the question, thought their pay rate was lower than that paid for jobs of comparable or less difficulty within the company.

More than half were satisfied with working conditions; 52.5% thought benefit plans were about the same as other types of businesses and 36.7% thought they were better.

Well over half thought company training and preparation was good; 43.9% thought promotions went to the best qualified person, although 26.4% thought otherwise.

About 30% said they got most of their information about the company from fellow employees. A close second at 26.2% got in from bulletin boards and 13.7% from the plant magazine. About 43% said they would like to get their information about the company from talks with supervisors or group meetings.

How's the Supervision? . . . Under *Supervision* the survey disclosed that only 29.7% of employees were always kept informed by their supervisors on their duties and responsibilities; but 65% felt their supervisors were usually or always fair.

A slimmer proportion felt supervisors always gave proper credit to workers; 65% felt free to go to the supervisor with a complaint about the job; 70% felt supervisors stressed safety most of the time. Some 42.5% had never had a discussion with their supervisors on how they (the individual employees) were doing on the job. But 47% both had had such discussions and felt they were helpful.

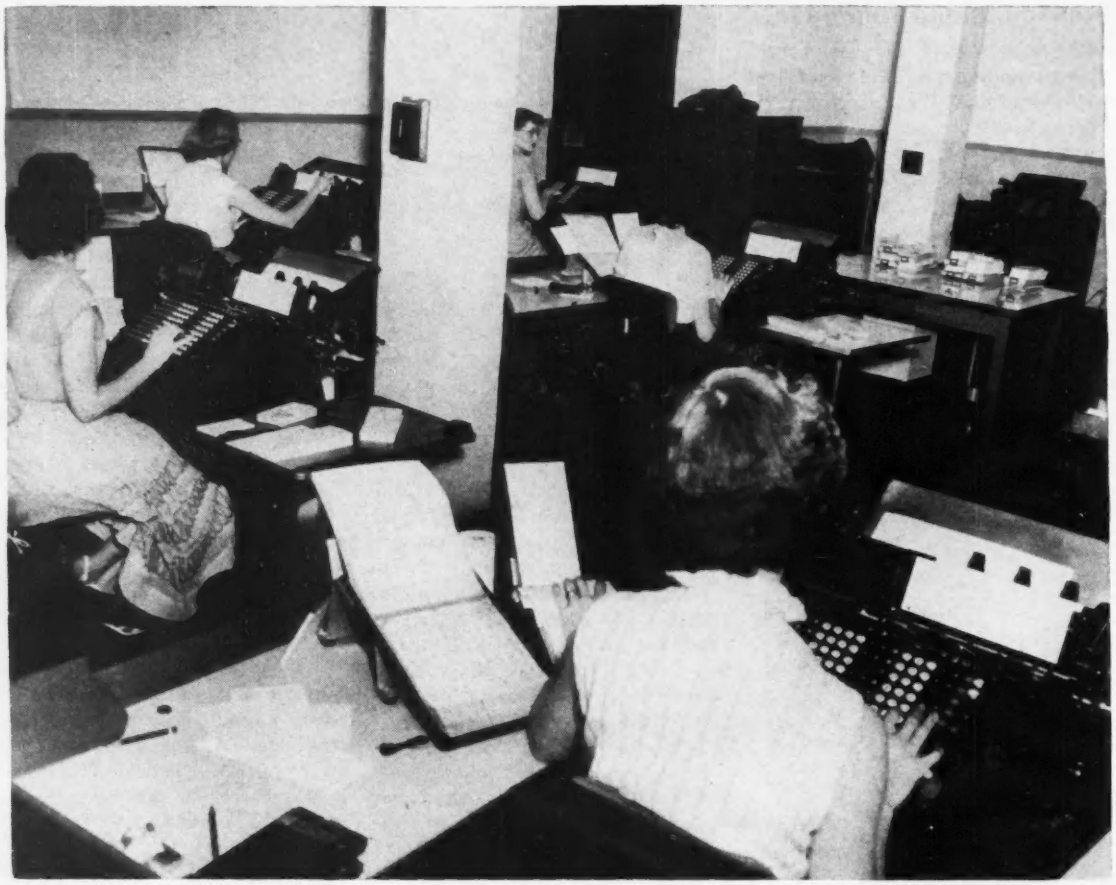
As for the company itself, 34.7% felt top management was sometimes aware of individual employee problems, and 35.7% felt it was rarely aware of them. Then 45.7% felt the company was as well managed as most, and more than 30% thought management was better than most.

As for its reputation with the public, 54% of the employees thought SDG&E rated excellent or better than most other companies, while 33.1% thought the firm's reputation was on a par with others.

Company Pride Can't Be Denied . . . The company was pleased with a response of 32.9% of its employees who said they take pride in telling others where they work, 38.7% who "like" to tell where they work. Only 23.2% had no strong feelings on the subject. And 4.3% didn't "feel too happy" about telling others where they were employed.

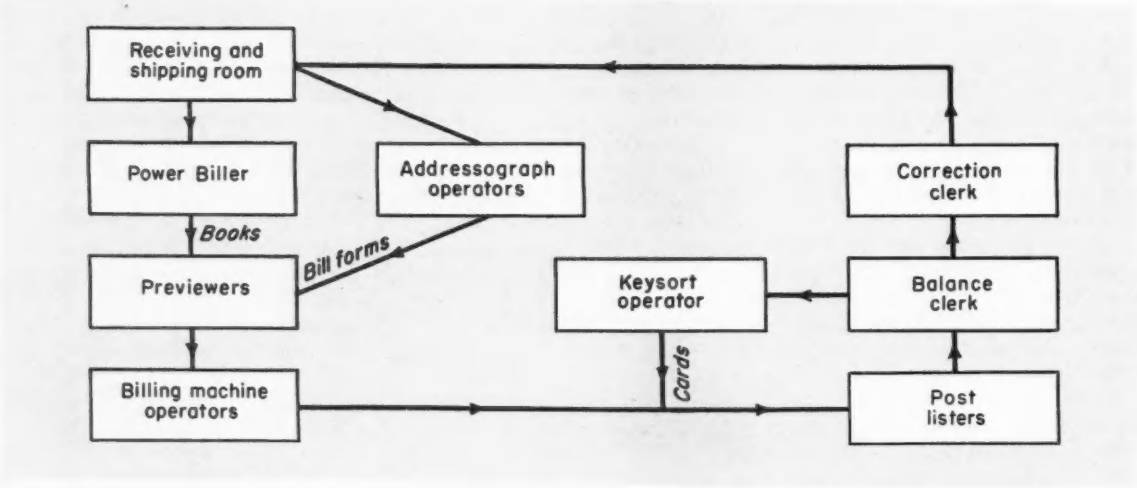
Fifty-five per cent of those surveyed would go to work for SDG&E if they were starting out anew. On the other hand 16.2% wouldn't, and 27.2% just plain don't know.

Nelson and the management feel the company stood up fairly well under its first trial by ballot. Now the point will be to put the survey to the one practical use that would make the thing worth while: Increasing employee satisfaction and, as a not incidental result, company productivity.



FIVE BILLING MACHINES now turn out 195,000 bills per month with greater accuracy than seven machines produced 145,000 bills under the old system. Central office does all billing for the entire Central Power & Light System which is adding 12,000 customers a year

Billing Costs Cut $20,000 a Year



N. A. EASTER, vice-president, Central Power & Light Co, Corpus Christi, Texas

A simplified billing procedure adopted in 1949 by Central Power & Light Co has saved $20,000 a year. Cost per bill has been reduced from 3.86¢ in 1948 to 3¢.

The 195,000 customers are billed at a central billing office. Meter books are shipped by express from the local offices each month. One local office is 300 miles from the central office in Corpus Christi.

When bills have been prepared, they are expressed back to local offices along with the meter books. The local offices then mail the post-card type bills to customers in their areas.

Old Procedure Labor Consuming . . . Before present methods were established, seven billing machines were used to turn out 145,000 bills each month. Machine operators were required to select registers for the different classes of revenue. Other duties included the figuring of irregular bills and those which extend beyond the range of the rate charts. Billing was followed by a proof operation of four clerks using adding machines.

The work schedule provided that meter books remain in the central billing office for four days—this schedule was seldom met. A billing production incentive plan was used, but it was complicated and required the keeping of considerable data to determine an operator's incentive pay. In addition, the company was gaining customers at the rate of 12,000 per year.

Develop Streamlined Plan . . . In developing a streamlined plan procedures were simplified and duplication of effort was avoided. Physical arrangement of the office was changed so that meter books would make one complete circuit of the office and end up at the shipping table with a minimum of handling and travel from one processing point to another. Considerable attention was also given to such aspects of employee comfort as lighting, seating, acoustics, air circulation, and rest periods. Climax of the reorganization was the installation of five new billing and two bill-proving machines in December 1948.

Now, when meter books arrive from local offices, they are reviewed by two of the most experienced clerks who check for high and low consumption and other irregularities. These clerks also figure amounts of bills which cannot be taken from rate charts.

Billing machine operators have been relieved of the burden of selecting registers for revenue classes. They now concentrate on speed, accuracy, and neatness in billing. As the result, billing production has increased greatly.

Operator Production Soars . . . Today five operators produce 195,000 bills per month or an average of 39,000 bills each. The top operator has an average production of slightly over 3,100 bills a day. Errors have been reduced from 7 per 1,000 bills to 2½ per 1,000 bills. A new salary scale based on production has been adopted for operators, and most operators reach the top salary within six months.

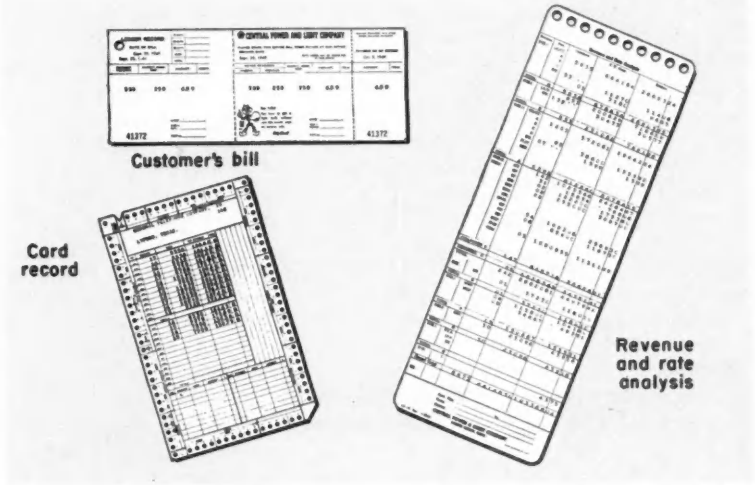
Bill proving is handled by operators of two multiple register machines, applying what generally is referred to as the dual calculation plan. Under this plan the proof listing operators list the consumption from the meter book and the amount from the rate charts or prefigured media and select registers for the revenue classes. At the end of the meter book, the grand total of consumption and amount is reconciled with the same total obtained from the billing machine. This proves that the accounts have been billed correctly and that all accounts have been billed.

Any differences which occur are easily located because the items on the proof list and on the billing journal are in the same sequence and can be compared quickly. As a by-product of proof listing, a card record is posted for all customers on a demand and energy basis. This card lends itself to rapid sorting and is used for rate schedule and business classification studies.

New System Is Fast . . . One clerk consolidates the revenue and rate statistics from the totals obtained from the proof listing machines and from the cards which were produced as a by-product. Revenue and rate statistics are now available shortly after the last bill for the month is completed. Under the former system, the revenue and rate statistics were compiled by the local offices and reported to the district office where they were summarized and reported to the home office. Usually the final figures were not available until after the 5th of the following month, or 10 days after the closing date.

In addition to effecting substantial economies, the simplified billing procedure has made it possible to reduce greatly the time required for processing work in the central billing office. The present schedule for books to remain in central billing is: "in one day—out the next". And this schedule is bettered a good share of the time—"in one day—out the same."

One of the intangible benefits has been the improvement in employee morale which a fast, accurate operation always brings.



SAMPLE FORMS include customer's bill, card record, and record and rate analysis. Card record, lower left, is posted as a by-product of proof listing and is used for rate studies

They Discussed Management's Responsibility

ERNEST R. ACKER

WALTER H. SAMMIS

GEORGE M. GADSBY

Government In Business No. 1 Problem

EEI Pres Walter Sammis warns Industrial Relations Conference at Chicago of threat posed by rapid expansion of federal power

The No. 1 problem of all industry in this atomic age is government in business. Consequently the No. 1 problem of the electric industry's management is government in business. This summarizes the address made by Walter H. Sammis, president of Edison Electric Institute, to the institute's Industrial Relations Committee's annual round table conference. Over 200 attended the conference held Oct. 12-14 at Chicago.

The Ohio Edison Co president cited the inroads that government proprietary operations are making in business in general and particularly in the electric industry. In 1939, he said, the private electric utility industry generated 90% of the power to serve the requirements of purchased electric energy as compared with 81% today. He compared this with the federal government which increased its participation during the same period from 4.3% to 13.9%.

Subsidized Costs Out . . . Government, he declared, "should not base its business prices on subsidized costs at the expense of the customers of private business and the general taxpayer." One of the reasons the national debt stands at about $273 billion is the federal government going into proprietary business.

He gave a detailed report of the ramifications involved when the representatives of several electric companies negotiated with the Atomic Energy Commission to serve power to an atomic plant in Pike County, Ohio. The expected annual consumption of electricity for this project, he asserted, is about 25% greater than present New York City consumption with its 8 million people and is two-thirds of the total power consumption of all the customers in the highly industrialized State of Ohio.

At another luncheon meeting, George M. Gadsby, president, Utah Power & Light Co, declared that in the service area one of management's important community responsibilities is to "sell faith" to the outsiders.

He said that management had many responsibilities to the service area. Among these are:

1. Furnishing an adequate supply of electricity with a maximum degree of continuity.

2. Foreseeing and building the necessary equipment required for supplying the constantly increasing requirements of electricity.

3. Procuring funds from outside sources to pay for the never-ceasing construction programs.

4. Earning a return with which to pay the hire of borrowed money.

5. Paying dividends to those purchasing the equity securities.

6. Promoting new and more use of electricity.

7. Planning and developing area development.

"No management can build a strong, enduring company," he said, "unless it simultaneously does all in its power to build a strong, continuing economy through its service area."

At the last luncheon meeting of the group, Ernest R. Acker, president, Central Hudson Gas & Electric Corp, said that "the quality of our leadership must be improved and the performance of our organizations upgraded if we are to meet the challenge of the postwar economy and provide for the future demands of our customers."

This leadership, he continued, can come only from a new manager who is essentially a coordinator, respects persons, recognizes ability, and relies upon teamwork to achieve results.

This manager should:

1. Have a broad knowledge of general business principles but need have only a basic knowledge of the elements of his own particular business.

2. Have an open and inquiring mind trained to analyze and quick to get at essential facts.

3. Have a love of playing with ideas and readily discarding the old in favor of the new.

4. Ask questions, seek the judgment and advice of others, and listen.

5. Lead his associates to the joint solution of organization problems but accept the responsibility for final decision when it is clearly his duty to do so.

6. Inspire others to develop their talents, to give their best, and to work for the best interest of the organization as a whole.

7. Fix responsibility and delegate authority.

8. Have a consummate knowledge of human relations.

Those characteristics shown above may never be found in any one man, but they represent an ideal for which we should all strive in the training and development of our future executives, he declared.

At the general session speakers told the group about the selection of employees, selling fringe benefits to employees, control of benefit costs and preparation for negotiations. These subjects were later discussed in more detail at the round table conferences.

R. G. Kenyon, vice president, Southern California Edison Co, talking on "Selection of Employees" said that a process that introduces to an organization between 10 to 15% of new people each year is a process worthy of careful planning and attention to detail. The process of the selection of new employees for an electric company is in that category.

Employment Procedure Underrated . . . Today, he continued, our employment procedure is much underrated and is too much taken for granted. The task must be placed in the hands of capable men. These men must have active support for those responsible for the overall success of the enterprise.

On the subject of "Selling Fringe Benefits to Employees," C. B. Boulet, director of personnel, Wisconsin Public Service Corp, told about the following short code as a guide to good communications:

1. Talk facts.

2. Relate communications to the employee's experience and direct them to his personal interests.

3. Don't talk down; yet use plain understandable language.

4. Be frank; don't pussyfoot.

5. Tell your story more than once.

6. Keep the presentation alive; personalize the message.

7. Be honest rather than clever.

8. Place responsibility for the communications program on one person.

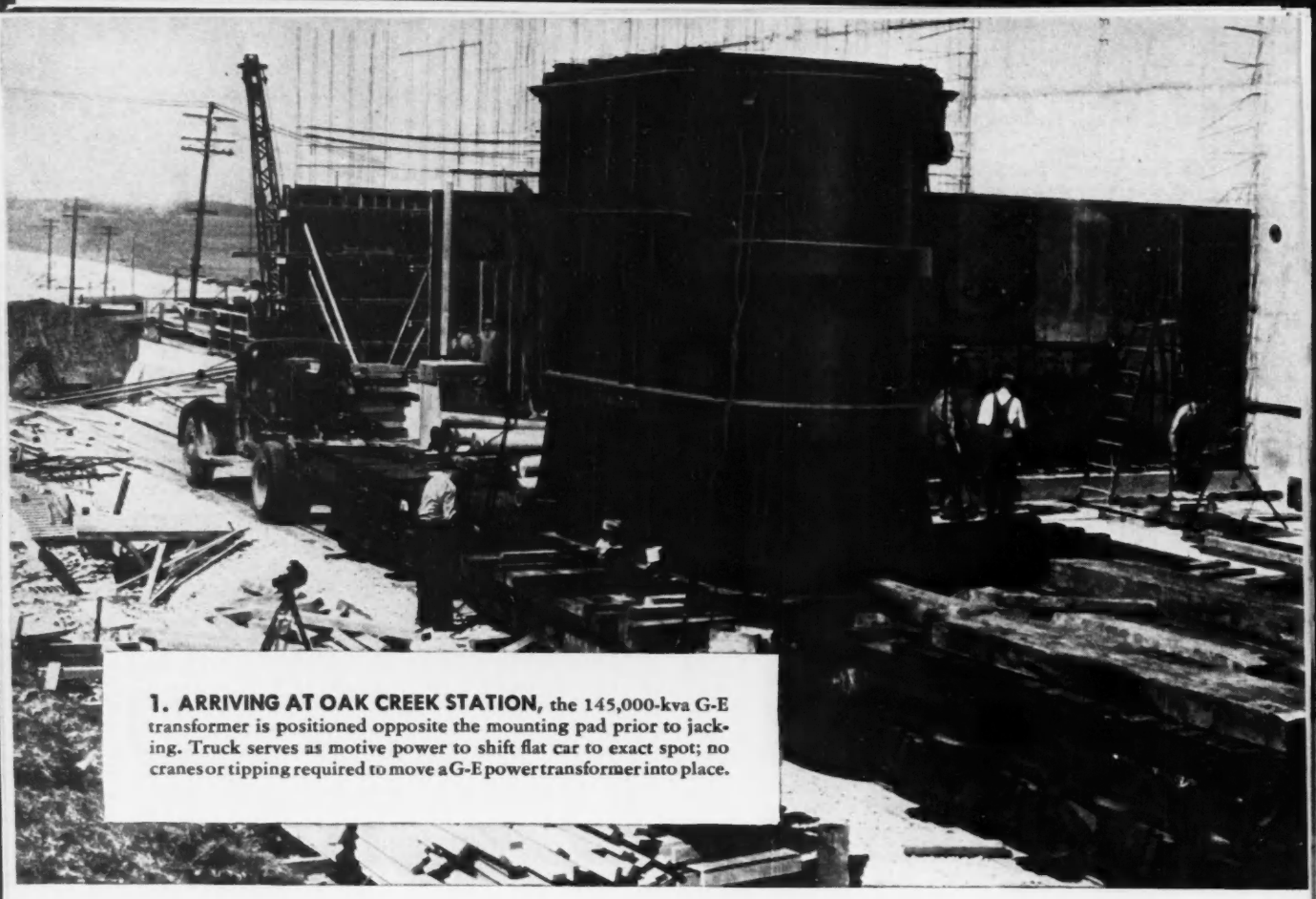
9. Don't limit communications to one channel; the more channels used the better.

10. Keep out of the rut.

Employee Benefits at $260 Million . . . Talking on "Control of Benefit Costs," John C. Arnell, senior assistant personnel director, Consolidated Edison Co of New York, reported that $260 million was expended in 1952 for employee benefits in the electric industry. The costs for 1953 will even be higher. This has nearly doubled in the ten year period 1943-52. The largest increases, he said, have occurred in the pay "for time not worked group" which includes vacations, holidays, and absences. Absences lead the way, he declared, with an increase from 1.53% of straight time payroll in 1948 to 2.57% in 1952.

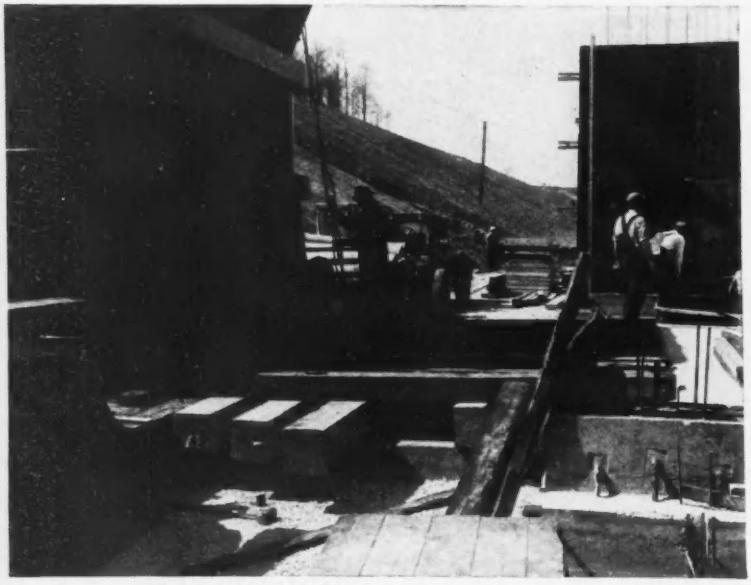
Speaking on "Preparation for Negotiations," H. K. Breckinridge, vice president, West Penn Power Co, suggested that the bargaining committee of the company confer with appropriate company executives to try to determine in advance the broad policies which will guide the management committee in negotiations.

GENERAL SESSION of EEI Industrial Relations Committee round table conference hears Chairman F. R. Rauch, Cincinnati G&E Co, introduce the speakers. Included are John Arnell, left, Consolidated Edison Co of New York; R. G. Kenyon, center, Southern California Edison Co; C. B. Boulet, Wisconsin Public Service Corp; and H. K. Breckenridge, West Penn Power Co

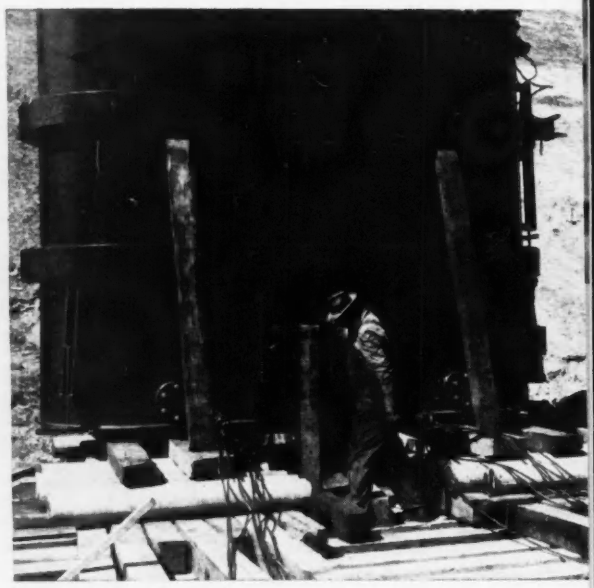


1. ARRIVING AT OAK CREEK STATION, the 145,000-kva G-E transformer is positioned opposite the mounting pad prior to jacking. Truck serves as motive power to shift flat car to exact spot; no cranes or tipping required to move a G-E power transformer into place.

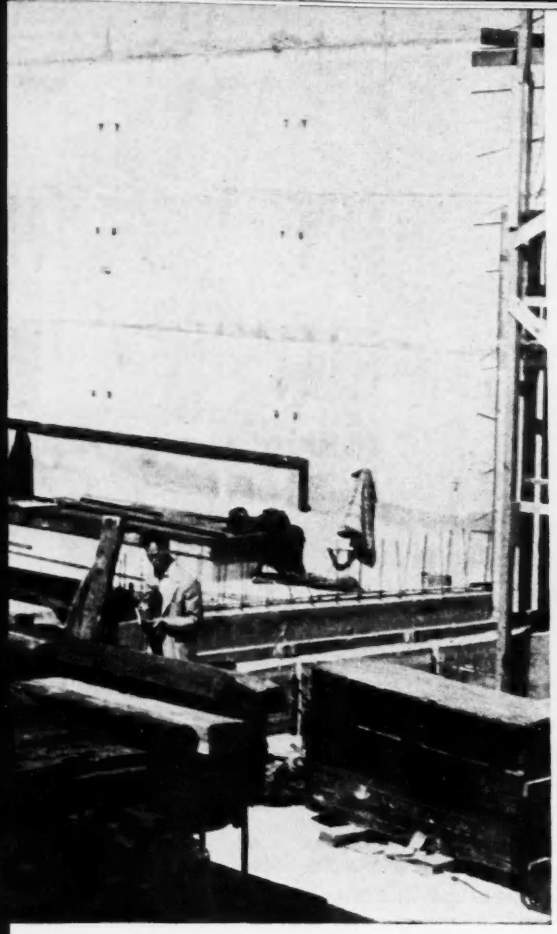
UPRIGHT SHIPMENT SPEEDS

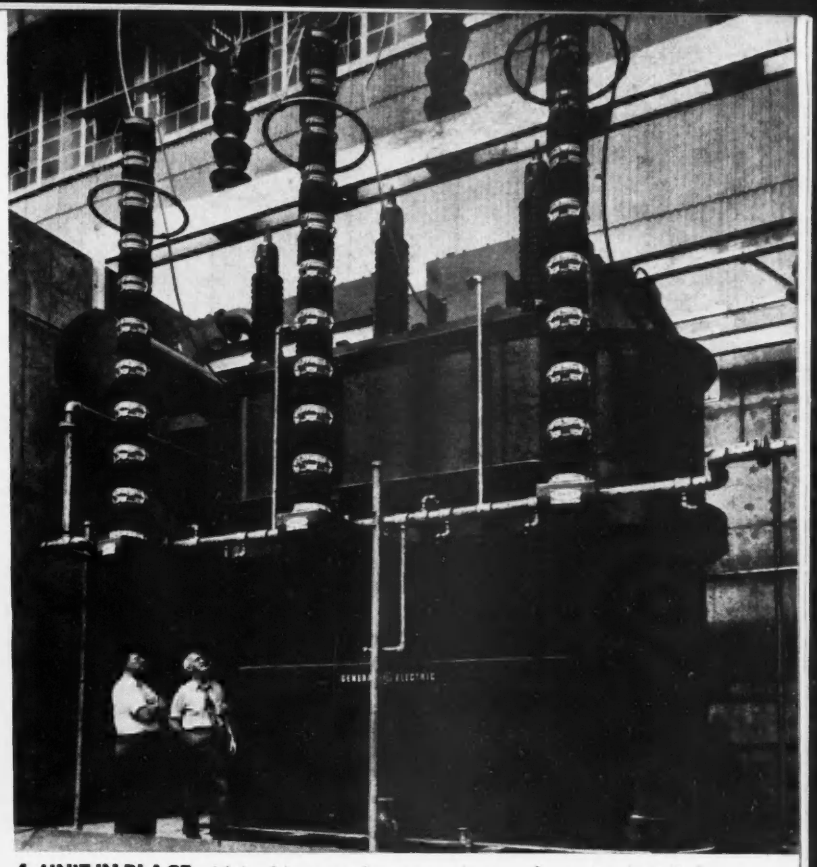


2. AFTER JACKING the unit is ready to be moved to the pad. Next step is to put wooden rollers in place. Total time required for jacking and positioning skids and rollers was 2½ days. Only truck winches were needed.



3. BLOCKS ATTACHED and ready to start rolling. Workman checks position of rollers before starting the shift from flat car to pad. While nearness of siding to pad helped reduce time, upright shipment simplifies any installation.





4. UNIT IN PLACE with bushings, cooler connections, and arresters installed. Only 4 operations were necessary to complete the installation of this 145,000-kva G-E transformer. Upright shipment makes the job easier!

G-E TRANSFORMER INSTALLATION

145,000-kva units for WEPCO shipped upright in one-piece tanks for easier, faster installation—at less cost

One of two General Electric 145,000-kva forced-oil water-cooled power transformers is shown being installed at the new Oak Creek station of Wisconsin Electric Power Company. These units are step-up transformers applied to raise generator voltage from 13,200 volts to 138,000 Gr Y for high-voltage transmission.

Installation was faster due to G-E one-piece tank construction and upright shipment. Installation time ran as follows: Jacking, 2½ days; moving to pad, ½ day; installing bushings, 1 day; filling with oil, 6 hours.

Only 4 operations are required to install large G-E power transformers:

1—Slide off flat car onto pad—no tipping, no top tank-sections to assemble.

2—Install bushings, radiators, and accessories.

3—Fill with oil and connect oil preservation equipment.

4—Connect to line and energize.

Upright shipment saves time, money. Instead of arriving on its side, or in sections—which would require expensive tipping and assembly operations—most G-E transformers arrive upright . . . ready to slide off the flat car to the foundation. This means that G-E transformers can be installed faster and easier. Utilities report that upright shipment has saved them up to $1750 per unit in installation costs.

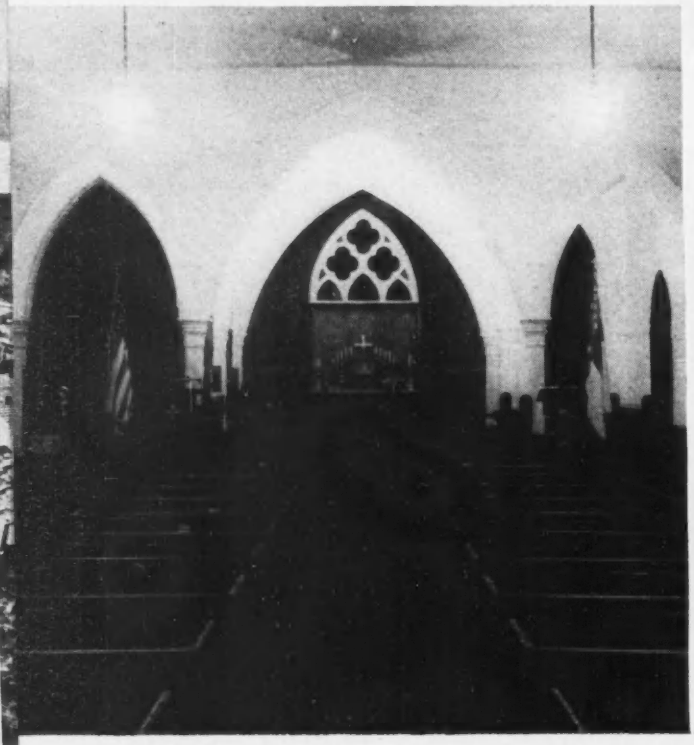
Why can G-E units be shipped upright? All G-E transformers have concentric windings. These windings have higher thermal, mechanical and electrical strength, yet are very compact. They permit transformers to be fitted into smaller tanks which can be shipped in the upright position.

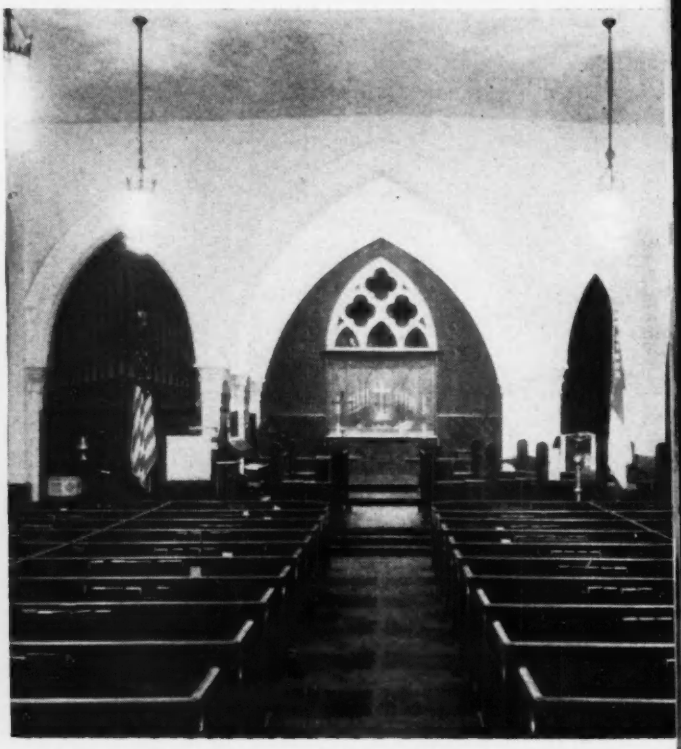
For full information about G-E power transformers, get in touch with your nearest G-E Apparatus Sales Office. General Electric Company, Schenectady 5, N. Y.

421-12

You can put your confidence in—

GENERAL ELECTRIC





NEW LANTERNS enclosing larger light sources provide better direction and higher intensity to illumination in Monongahela territory church

Lighting Promotion Pays Out 10 to 1

H. P. LANG, Commercial Promotion Manager, Monongahela Power Co, Fairmont, W. Va.

We in Monongahela are thoroughly convinced that active promotion of planned lighting adds profitable load. Lighting is still the "bread and butter" item in our total commercial revenue, and we recognize a vast potential market yet untapped. We feel that any commercial lighting department should be built around these prime factors:

- An aggressive and intensified program of customer selling and promotion of commercial lighting by utility lighting men.
- A continuous program covering customer and trade education.
- An active program to enlist help of other segments of the industry.

Working on these three lines, our EAR per dollar of sales cost was nearly $10 in 1952, as is shown in the accompanying tabulation.

Our nearly 13,000 sq mi are dotted with small communities. We have coal mining, agriculture, chemicals, steel, potteries, and other industries making up the economy of the area.

Need Little Help . . . Our commercial customers are low in their average use compared to metropolitan areas. Only a small proportion of them need highly specialized engineering assistance to improve their lighting. Job is primarily one of sales promotion and contacts to help wiring contractors sell standard lighting equipment.

Since our commercial promotion representatives are all-purpose men, they accomplish the results shown with only 20% of their time being available for direct lighting promo-

Summary of Results—1952—Commercial Lighting Promotion

Commercial customers		23,300
Lighting calls*		1,800
Lighting plans and proposals made		
New installations	577	
Relighting	712	
Total		1,289
Total lighting kw proposed		3,516
Total lighting kw sold		3,213
Percent proposed that was sold		91%
Estimated annual revenue at $40 per kw		128,520
Total cost of salaries, expenses to promote commercial lighting		13,000
Average kw sold per call		1.8
Average EAR sold per call		$71.00
Average cost per call		7.22
EAR per dollar sales cost		9.88

* Do not include contacts with contractors, dealers and architects

tion. The additional commercial lighting load for 1952 was obtained by the equivalent of 11 full-time men. We have nine full-time commercial representatives and 70 rural representatives who together are considered to be equal to two full-time men.

A big factor in developing the commercial lighting market is telling a lighting story to as many people as can be reached, and to that end we directed the following program:

- 1,650 copies of "Today's Business" mailed regularly to selected customers
- Continuous use of EEI lighting material
- 160 copies of EEI Sign Manual distributed to contractors, dealers, and architects
- Manufacturers' literature and specifications made available to customers
- "Better Light—Better Sight News" regularly mailed to all school officials, including state PTA president and state director of school plant planning
- 73 group meetings conducted by our lighting men reached 7,300 people.

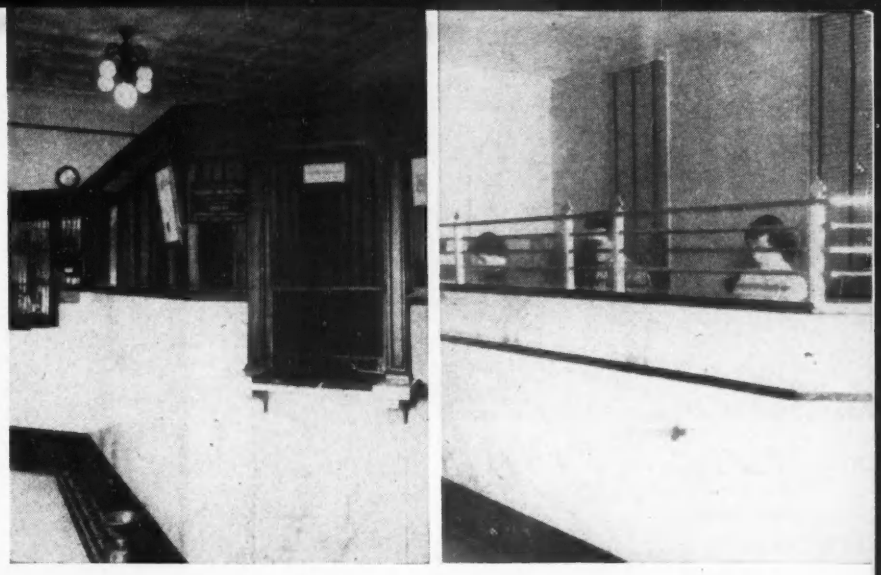
Special Program . . . In addition we conducted four special activities that we considered highly profitable:

1. Three lighting courses held for the trade, using the Westinghouse fundamental lighting instructions. We had an average enrollment of 35, average attendance of 30 and 86% of all enrollees received a certificate of completion. We regard this as one of our most successful lighting activities during 1952.

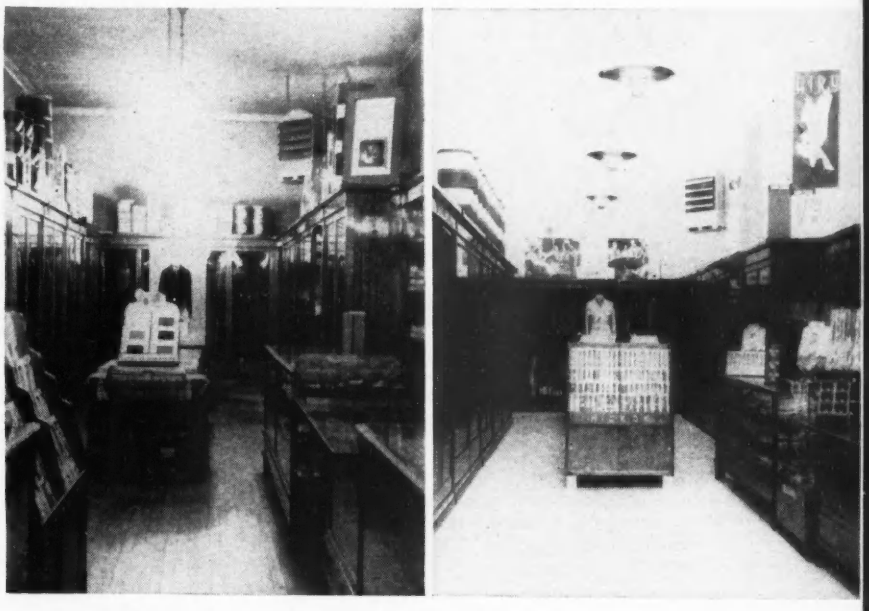
2. We cooperated with West Virginia University in sponsoring "Greater West Virginia Week." In 1952 our representatives displayed the development of fluorescent lighting and some of its applications, along with a demonstration of color rendition by using a line model to show the proper lamp colors for various lighting results. We estimate that 1,500 to 2,000 people heard this lighting story.

3. An experimental promotion of time clocks for window lighting was carried out in one division, resulting in the sale of 14 time clocks and the addition of 37.5 kw of lighting.

4. A lamp promotion entitled, "Fill the Sockets" resulted in $1,654 in lamp sales and the addition of 280 kw of lighting.

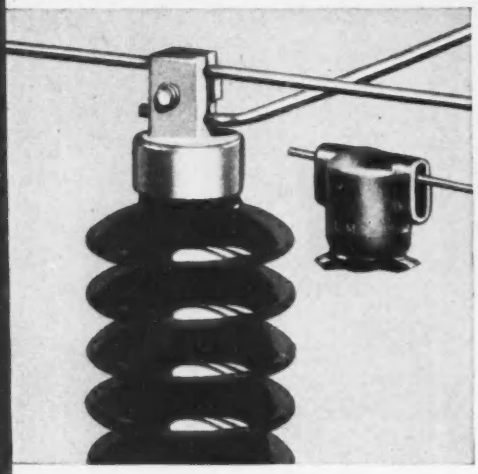


IMPROVEMENT made by relighting is shown in these before and after pictures of a bank . . .

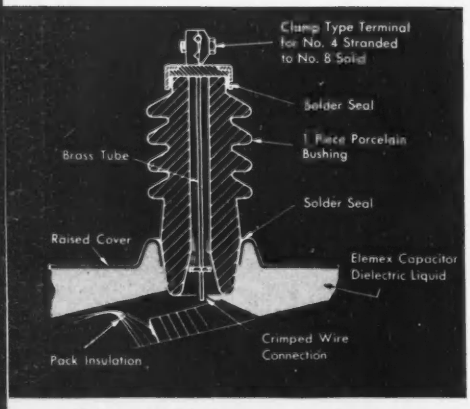


. . . men's clothing store, above, and department drug store, below

Every single pack is individually tested—with an over-voltage test that instantly reveals any actual and potential defects. Both faulty and marginal packs are rejected.



Exclusive "Paragroove" clamp-type terminal saves time and labor. Wire isn't threaded through a slot—it's just dropped in and clamped. Torque is vertical, not horizontal. Therefore in tightening you don't twist the bushing or stress the solder seal unduly. It's rugged; we've never had one break. No loose parts. Low resistance, less heating. Neoprene insulating caps also available.



Solder-sealed bushings are one-piece wet-process porcelain, with two metallized bands over the glaze. Bushings are hermetically sealed to drawn raised bosses in the cover that shed water like a duck. Strong? It takes over 3000 pounds to force an L-M bushing out of the cover. And they're 100% pressure-tested—every single one!

Packs are wound by automatic machines in spotless, dust-free, air-conditioned rooms. Once the machine is set, it automatically winds the proper footage of paper and foil and locates the position for the electrodes. Thus, uniformity is assured. Paper is the highest-grade dielectric tissue, of 8/10ths density, which adds greatly to the very low failure rate of ELEMEX Capacitors.

L-M's Exclusive Process

The exceptionally long life of ELEMEX Capacitors is proved in the laboratory with accelerated life tests, and in the field under actual service conditions. In the accelerated life tests, ELEMEX Capacitors last twice as long as other capacitors. This is true—but why it is true is because of a number of things.

The fact that we use 8/10ths density paper is *important*. This density seems to yield better to impregnation, without being too porous, and gives a lower paper power factor. This results in better performance.

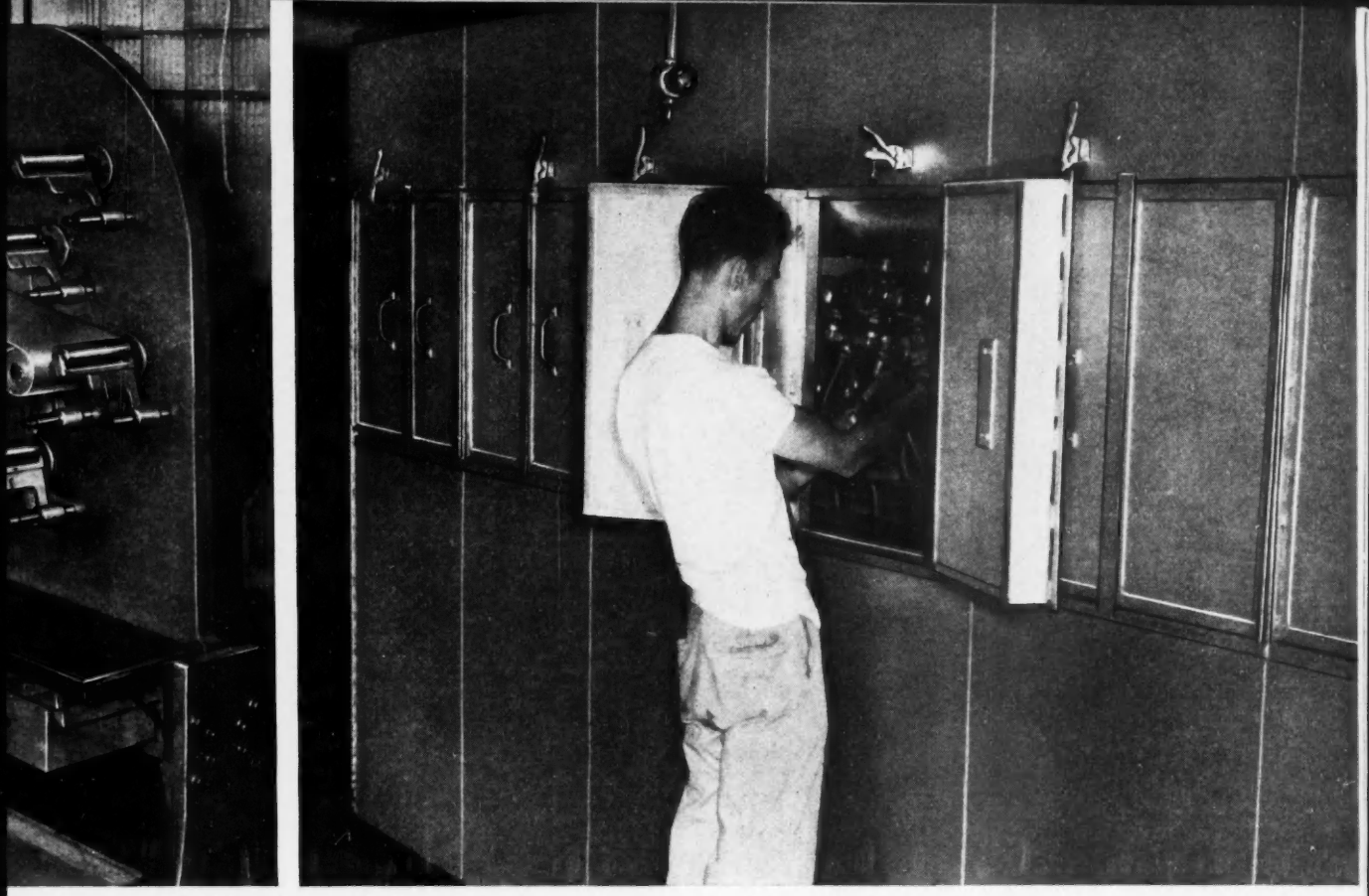
Another point is L-M's exclusive process of continuous, *individual* drying and impregnation. This is done with a very large-capacity high vacuum pump by means of individual capacitor connections, in an unsealed oven. Each unit is tested *during* the process.

Individual evacuation and testing assure that each capacitor becomes bone-dry, and that ELEMEX liquid slowly permeates every fibre of the paper. Even the bushings are completely filled with ELEMEX liquid, giving them exceptionally good electrical qualities.

The arc-welded tanks are designed to give the tank sides flexibility to allow for expansion and contraction of the ELEMEX liquid with changes in temperature. Tanks are sandblasted and then given three coats of baked enamel finish. The first coat is a red chromate primer, and the second and third coats are a melamine-modified alkyd resin enamel. This finish has been extensively tested under various weathering conditions. Severe atmospheric exposures such as coastal salt spray and sulphurous industrial conditions, and various laboratory tests, have proved the durability of the L-M finish as compared to other types of finishes.

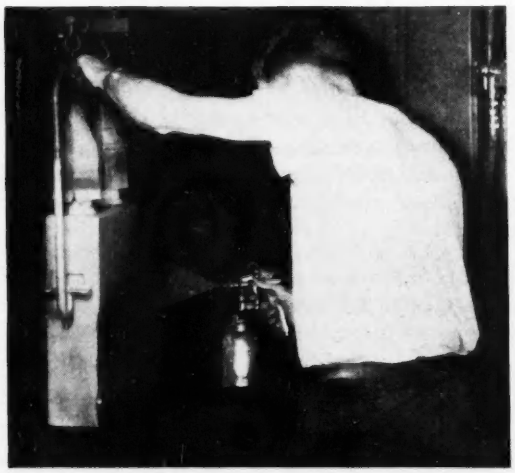
ELEMEX Capacitors are outstanding in their performance and long life. L-M Field Engineers will be glad to supply additional data, details, and literature. Or write Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

"ELEMEX" is a Line Material trademark.



ELEMEX Capacitors are individually dried and impregnated in unsealed ovens like this. L-M evacuates only the *inside* of the capacitors, not the space around them. Air at controlled temperatures is circulated around the entire capacitor to maintain proper internal temperatures, giving better drying and complete impregnation. Also, the heat cures the paper, lowering its power factor and providing a low power factor in the completed unit. Each unit gets individual tests of power factor and capacitance *during* evacuation. These tests assure proper timing of each step in the process.

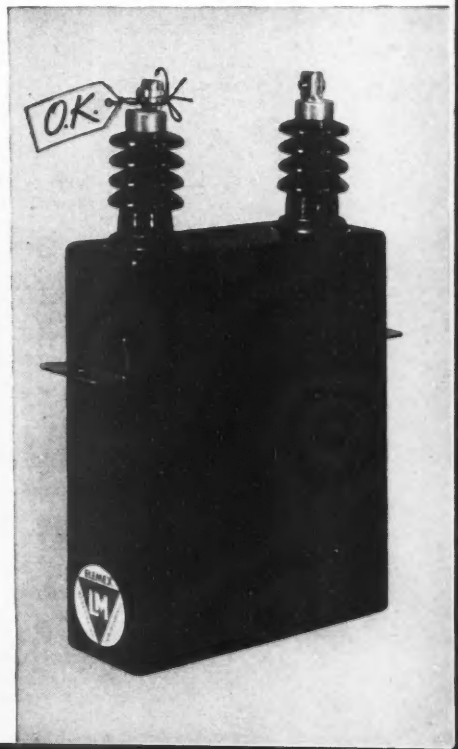
Reduces Capacitor Replacement



Tanks are sandblasted. Then they get a coat of red chromate primer, and *two additional* coats of melamine-modified alkyd resin enamel. Each coat is cured by baking.

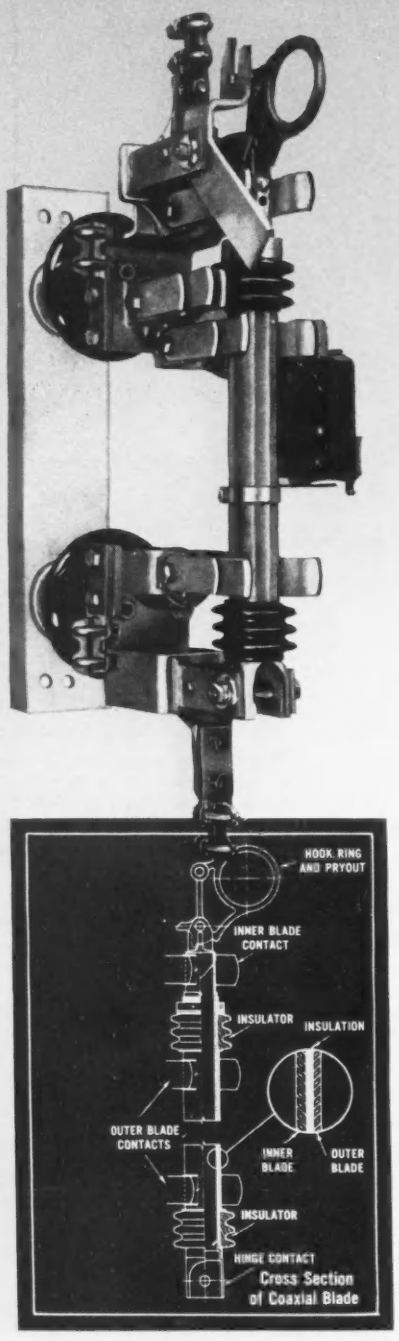
The completed capacitor. Its test record tag, which has followed it throughout the process, is filed. Stainless steel tank flanges carry the nameplate identification. All ELEMEX Capacitors have the same width and thickness. Hanger flanges are placed to provide uniform terminal elevation above the hanger in each voltage class. This makes it easy to change from 15 to 25 kvar, if desired.

148-2



LINE MATERIAL

Elemex Capacitors



Reduce Space Requirements . . . . *Lessen Possibility of Errors* with DELTA-STAR'S *New*

"R-2K" REGULATOR BY-PASS SWITCH

A new concept eliminates the necessity of the typical two-blade construction and employs a "co-axial" blade in which one blade is inside the other. This provides a clean, sturdy, compact unit with a low reactance drop and reduced loss from skin effect or crowding of current to the surface of the conductor.

This switch combines three switches in one—a switch on either side of the regulator to disconnect it from the circuit and a third switch to act as a by-pass. In building all three switches as a unit, complete switching is simplified. Closing or opening is accomplished by one operation, thus reducing the possibility of error.

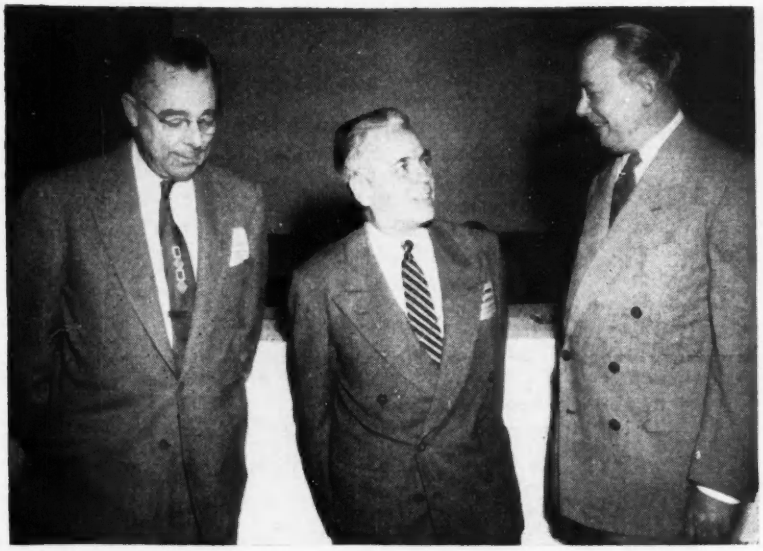
Contacts of the new "R-2K" By-Pass Switch are hard drawn copper with silver inlays backed up by beryllium copper springs and are the same as those on standard Delta-Star hook switches. Blades are equipped with a pryout device for ease of operation. These switches are guaranteed to carry full rated continuous current and corresponding short time current.

"R-2K" By-Pass Switches are available with or without interrupter in 400 and 600 ampere capacities at 7,500 and 15,000 volts. Write for complete information.

WHEN YOU WANT THE BEST IN HIGH VOLTAGE SWITCHING EQUIPMENT SPECIFY DELTA-STAR

DELTA-STAR ELECTRIC DIVISION

H. K. PORTER COMPANY, INC.
2437 FULTON STREET, CHICAGO 12, ILLINOIS
DISTRICT OFFICES IN PRINCIPAL CITIES



THREE SPEAKERS at Indiana Electric Association meeting chat among themselves. They are (l to r) A. B. Brown, outgoing IEA president; W. H. Sammis, Ohio Edison; and G. B. Warren, GE

Tax Equality Asked by Sammis

EEI president tells Indiana Electric Association government enterprises should pay same levies as private business

When the government goes into proprietary business it should pay taxes to the same extent and on an equal basis with investor-owned business, Walter H. Sammis, president of the Edison Electric Institute and Ohio Edison Co, told the annual convention of the Indiana Electric Association at French Lick, Oct. 7.

The effect of the Department of Interior's new power policy will depend largely on interpretations by department and agency officials, Sammis declared. He said that until the unfair tax and other discriminations against customers are removed by Congress, the new policy cannot be very encouraging to private capital. However, he said, some unfairness could be corrected if agencies sold power at prices to cover its true cost and did not sell partly at the expense of the taxpayer.

Says Preference Is Un-American . . . Preference clauses, said the EEI president, constitute discrimination against customers of private business. "They are not only unfair but they are un-American. There is no preference among the people of this country," Sammis told the convention.

While there is a note of encouragement in the attitude and statements of Secretary McKay of the Interior Department, said A. B. Brown, president, Indiana Electric Association, this encouragement must be tempered with the knowledge that the Department of Interior probably has many public power advocates and promoters, awaiting the day when they can rise with others to fight for government power and government in business. He declared that it is a plain fact that the socialistic planners in and out of government will be more than glad to take over when the opportunity presents itself. If the industry fails to present its case to the public it will have failed by default, he said.

Brilliant Men Needed . . . The power industry must find ways of getting more of the brilliant and outstanding young men who are graduating from our colleges, Andrey A. Potter, retired dean of the College of Engineering of Purdue University told the convention. Potter said the industry is not attracting the best graduates because they are not paying enough. He said he believed it was in the public interest to increase rates if necessary to attract the best talent available.

Electric utilities, said Potter, must also protect their future by taking a more active part in research. They need more research, he said, and they are not spending enough on it.

Potter's remarks were in response to a citation presented by the Indiana Electric Association for his contributions to the electrical industry.

Contribution to Peace . . . A combination of the steam turbine and gas turbine will remain supreme in the field of efficient large scale power production for at least another 50 years, Glen B. Warren, General Electric Co, told the convention. Warren said that if electric power is the key to an increased standard of living, and if living standards are the key to peace then this country can contribute to world peace by sharing with other nations its "know how" of low-cost, large-scale power production.

The room air-conditioning industry is a young and rapidly growing one and it needs the stability and guiding hand of the electric utilities, said J. M. Otter, vice president, Philco Corp. Otter cited the leap in sales volume from 29,000 in 1946 to 700.000 in 1953. He said that the introduction of the reverse cycle on these units extends their operating season into the spring and fall months, increasing their value to the utilities as load builders.

Electricity on the Farm . . . As population grows, American agriculture will have to produce more per acre, said Dr N. J. Volk of Purdue University's Agricultural experiment station. Electricity may be expected to help, he said, through irrigation, preservation and processing of crops and livestock, and controlled environment of livestock and crops. It appears possible, he said, that cattle will produce more if kept in artificially cooled environments in summer, sheep may produce two crops of lambs a year instead of one. Control of light and other environmental conditions may be instrumental in increasing crop production, said Volk.

New Officers . . . New officers elected were: president, R. A. Gallagher, president, Public Service Co of Indiana; and vice president, Dean H. Mitchell, president, Northern Indiana Public Service Co.

Summary of Accelerated Amortization Dispositions for Electric Utility Industry

(Continued from last week)

Number of States with Orders Issued	20
Number of States Without Orders But Asserting Jurisdiction	1
Number of Orders Prescribing Restricted or Appropriated Surplus Method of Accounting	22
Deferred Credit or Tax Reserve Method	7
Unclassified	1

State	Company	Date of Order	Accounting Disposition to Income	Accounting Disposition to Balance Sheet	Comments
New Jersey	Public Service Electric & Gas	1/16/53	Sub a/c of 507	Restricted Surplus	Accounting purposes only.
New Mexico	General Order	6/ 9/52	Sub a/c of 507	Tax Reserve	
North Carolina	Carolina Power & Light	1/26/53	Sub a/c of 507	Restricted Surplus	
Ohio	Cincinnati Gas & Electric	4/16/52	Sub a/c of 507	Restricted Surplus	
	Cleveland Electric Illuminating	3/13/52	Sub a/c of 507	Restricted Surplus	
	Ohio Edison	7/28/52	Sub a/c of 507	Restricted Surplus	
	Ohio Power	8/27/52	Sub a/c of 507	Restricted Surplus	
Oklahoma	Public Service Co of Oklahoma	1/28/53	Sub a/c of 507	Restricted Surplus	The commission specifically says that this order is not to be construed as adjudicating any issues arising in rate proceedings.
Pennsylvania	Philadelphia Electric	2/24/53	Sub a/c of 507	Restricted Surplus	No debits or credits, other than those authorized, to be made to the restricted surplus account.
South Carolina	Carolina Power & Light	1/27/53	Sub a/c of 507	Restricted Surplus	
Virginia	Appalachian Electric Power	11/25/52	Sub a/c of 507	Restricted Surplus	
	Virginia Electric & Power	11/26/52	Sub a/c of 507	Restricted Surplus	
Washington	Pacific Power & Light	1/30/53		Restricted Surplus	There are no credits or debits to Income. Equalization done entirely with the surplus account. For rate making in the post-amortization period, 1/25th of restricted surplus is to be used annually as a credit against income tax accruals of the company.
	Washington Water Power	3/10/53		(SAME AS ABOVE)	
West Virginia	Appalachian Electric Power	2/ 6/53	Sub a/c of 507	Restricted Surplus	Jurisdiction reserved on all other matters.

REGULATION

Virginia Electric & Power Co has asked the State Corporation Commission to increase rates by 6% to become effective Jan. 1, 1954.

Tacoma, Wash., City Light will have to revise its rates upward, perhaps before the end of this year, the Tacoma Public Utilities Board has revealed. The board will await a report by W. C. Gilman & Co, New York, before recommending any rate hike to the City Council. Gilman has been an advisor to City Light since 1946.

Because of a prolonged drought Grand River Dam Authority has announced that a temporary increase of 20% in its rates will be made in December.

Today in Utility Finance

Merger Okayed

Washington PSC authorizes WWP to take over Puget P&L. PUD's may block move

Approval by Washington Public Service Commission for the proposed merger of Puget Sound Power & Light Co with Washington Water Power Co brought quick reminders from Puget and the Public Utility Districts that consummation of the merger may still be far away.

While the approval "constitutes a major procedural step, it would be premature to conclude that this in itself represents the final answer as respects a merger," said Frank McLaughlin Puget's president. Ken Billington of Seattle, executive secretary of the state PUD Association, hinted steps will be taken, probably in the courts, to block the merger.

PSC Decision Hailed . . . The decision was hailed, however, by Kinsey N. Robinson, president of WWP.

"We are most pleased that the order issued will permit us in the near future to hold hearings before the Federal Power Commission and to place the merger proposal before the stockholders of both companies at a reasonably early date," said Robinson. "We are confident that with the approval of the stockholders and the FPC there will exist a unified and stronger operation of the two power systems with resulting economies."

McLaughlin still sees difficulties. FPC has set no date yet for a hearing, he pointed out, and the merger must be approved by two-thirds of the outstanding shares of stock of both companies. If more than 50% of Puget shares elect to take cash, at the rate of $27 a share, rather than trade each Puget share for a half-share of WWP stock and half-share of new $1.28 cumulative preferred stock to be issued by WWP, the merger is terminated.

The present closing date of the merger agreement is Nov. 19, too near to make consumation possible, but Robinson said he believed an extension would be granted if needed.

Closing date of a purchase agreement between Puget and the five PUD's is Nov. 20.

Puget's Common Dividend Increased . . . On the same day that the PSC approved the proposed merger, Puget directors voted to increase the quarterly common stock dividend from 30¢ to 37½¢ a share to holders of record Oct. 28, to be paid Nov. 16.

The new dividend rate, subject to approval by the Washington PSC, places Puget's stock wtihin 10¢ of the annual dividend rate of $1.60 paid by WWP.

YIELDS (%)

Quality	Bonds 1st	Bonds 2nd	Bonds 3rd	Preferred Stock 1st	Preferred Stock 2nd	Preferred Stock 3rd	Common Stock 1st	Common Stock 2nd	Common Stock 3rd
DATE 1953									
Oct 15	**3.17**	**3.21**	**3.42**	**4.24**	**4.42**	**4.73**	**5.22**	**5.67**	**5.86**
Oct. 8	3.22	3.25	3.44	4.26	4.43	4.75	5.26	5.76	5.86
END OF QTR									
3rd 1953	3.30	3.33	3.54	4.35	4.52	4.83	5.36	5.97	6.01
2nd 1953	3.34	3.46	3.64	4.47	4.70	4.88	5.52	5.93	6.10
1st 1953	3.15	3.23	3.39	4.16	4.41	4.66	4.95	5.24	5.50
4th 1952	2.99	3.03	3.14	4.06	4.22	4.59	4.98	5.33	5.62

Data: Reis & Chandler, Inc.

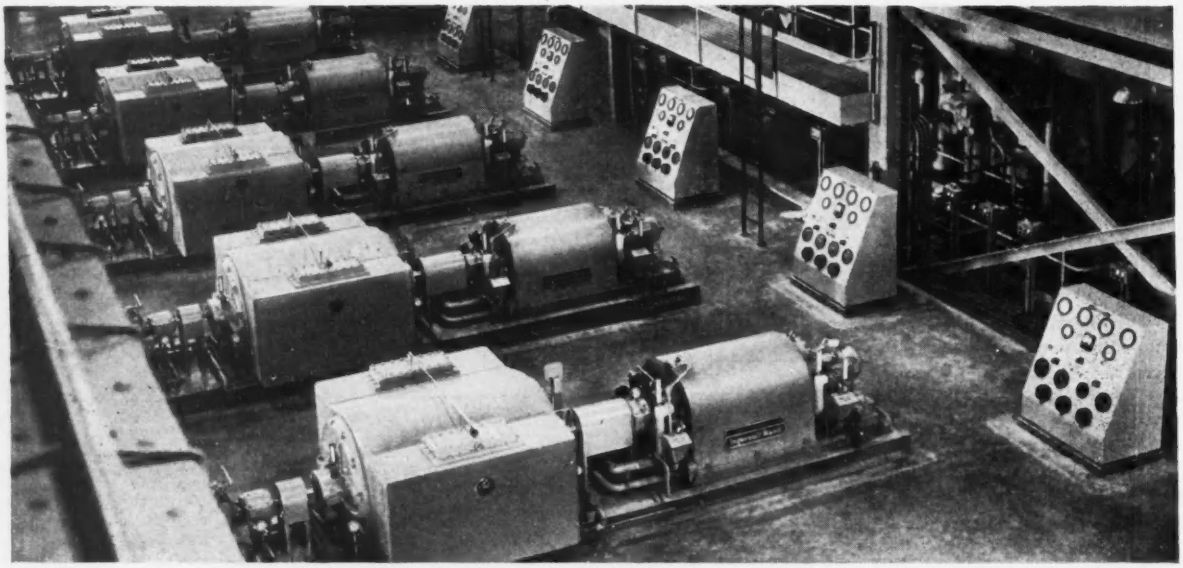
EARNINGS

Company	Period Months Ended		Net Income 1953	Net Income 1952	Earnings Per Common Share 1953	Earnings Per Common Share 1952
Carolina Power & Light	12	Sept.	$7,234,152	$6,870,834	$....	$....
Central Illinois Light	12	Sept.	3,435,027	2,951,106	3.26	2.72
Florida Power & Light	12	Sept.	8,136,825	7,129,699	2.98	2.63
Houston Lighting & Power	12	Sept.	10,178,421	8,302,294	....	....
Minnesota Power & Light	12	Sept.	4,018,125	3,294,172	4.01	3.16
New York State Electric & Gas	12	Sept.	8,564,655	7,486,380	2.71	2.39
San Diego Gas & Electric	12	Aug.	4,509,401	4,222,560	....	....

FINANCING

Company and Description	Amount of Offering (000)	Offering Price	Yield to Public / Bid Date
WEEK OF OCTOBER 15-21			
Common Stock			
Public Service E&G — 800,000 sh	$20,600	$25.75	6.21%
Debentures			
Province of Ontario, Canada—debs 3⅝% due 1978 (proceeds of sale to be advanced to Hydro-Electric Power Commission of Ontario)	$50,000	98.78%	3.70%
SCHEDULE FOR OCTOBER—NOVEMBER—DECEMBER			
Bonds			**Bid Date**
Public Service Electric & Gas—1st mtg due 1983	$30,000	.....	Oct. 27
Gainesville, Fla.—water and electric revenues due 1956-1976	1,300	.....	Oct. 27
Niagara Mohawk Power—gen mtg due 1983	40,000	.....	Oct. 28
Long Island Lighting—1st mtg due 1983	25,000	.....	Nov. 9
Gulf States Utilities—1st mtg	10,000	.....	Nov. 23
Monongahela Power—1st mtg due 1983	10,000	.....	Dec. 1
Preferred Stock			
Worcester County Electric—75,000 sh $100 par	$7,500	.....	Nov. 17
Duquesne Light—100,000 sh $50 par	5,000	.....	.....
Common Stock			
Hartford Electric Light—105,500 sh (to be offered commonholders on a 1-for-8 basis, record Oct. 23 to expire Nov. 10)	.....	.....	.....
Central Illinois Light—100,000 sh (to be offered commonholders on a 1-for-9 basis, record Oct. 27 to expire Nov. 13 with an oversubscription privilege)	.....	.....	.....
Delaware Power & Light—232,520 sh (to be offered common holders on a 1-for-7 basis, record Nov. 25 to expire Dec. 15; employees to be given right to subscribe up to 150 shares)	.....	.....	.....
Virginia Electric Power—558,946 sh	.....	.....	.....
POSTPONED, UNSCHEDULED, AND/OR UNDER CONSIDERATION			
Bonds			
Southwestern Public Service—1st mtg	$12,000(e)	.....	.....
Illinois Power Co—1st mtg	20,000	.....	.....
Florida Power Corp—1st mtg	10,000(e)	.....	.....
Houston Lighting & Power—1st mtg	25,000	.....	.....
Public Service Co of Colorado—1st mtg	15,000	.....	.....
Delaware Power & Light—1st mtg	10,000(e)	.....	.....
Preferred Stock			
Southwestern Public Service	$3,000(e)	.....	.....
Narragansett Electric—150,000 sh $50 par	7,500	.....	.....
Common Stock			
Iowa-Illinois Electric & Gas	$6,000(f)	.....	.....
Southwestern Public Service—(to be offered on about a 1-for-13 basis)	.....	.....	.....

Notes—(e) Estimated; and (f) To sell enough common stock to yield $6 million.



The G-E V-c interlocked armor cable system offers many advantages in the planning of circuits for boiler feed-pump motors, coal-handling equipment, and other station auxiliary units.

For flexibility in planning new stations use the G-E V-c interlocked armor cable system

Changes from original plans in the number, size, or location of station auxiliary equipment are considerably less of a problem when you supply power with the G-E V-c interlocked armor cable system. The presence of piping installed for other services is not a major problem when you use interlocked armor cable for electric service. Simply make one-line layouts—save drafting costs—and rely on the G-E V-c interlocked armor cable system to handle increased power requirements or changed locations. Here's why.

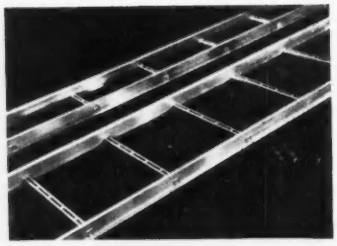
Easy to bend. Corners and projections present no major installation problems for the G-E V-c interlocked armor cable system.

The cable

G-E V-c interlocked armor cable, Catalog Number SI-13222 (0-5000 volts), combines the reliability of varnished-cambric insulation and a tough, inert thermoplastic jacket with the protection of metal armor—steel, bronze, or aluminum. The cable is flexible and can be pulled in long runs around corners, bends, or projections. It does not require conduit and eliminates extensive engineering layout time. It can be quickly relocated if necessary and is always available for visual inspection.

Racks

Aluminum alloy racks, available in several widths, are used to support G-E interlocked armor cable. The racks can be hung from the ceiling or walls inside or outdoors. Bends and fittings are available to make the racks conform to slopes, rises, corners, or other unusual building contours.



These inexpensive racks carry the cable and can be installed quickly and easily.

For outdoor equipment

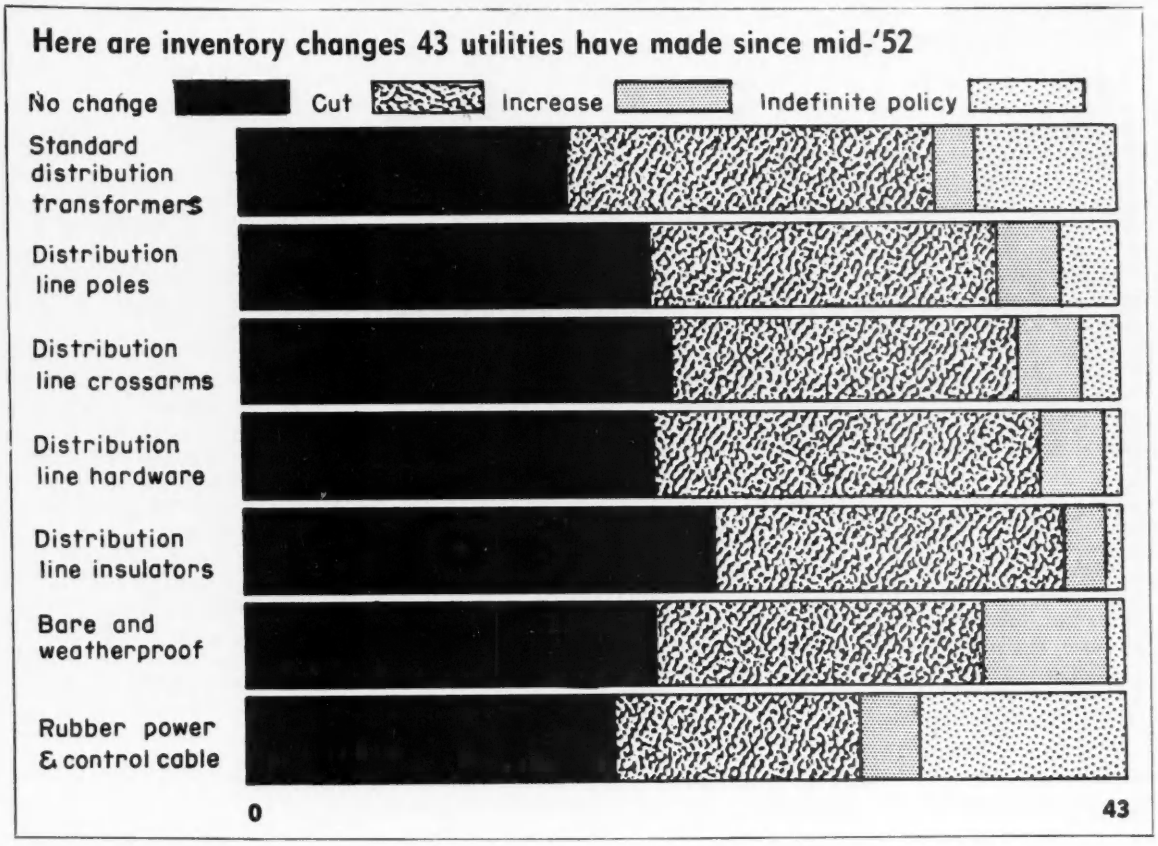
The same G-E V-c interlocked armor cable system used to supply power for units located in a building can also be used above ground to furnish power for units located outdoors. The system thus meets the trend towards the elimination of building construction wherever possible.

It will pay you to investigate the G-E V-c interlocked armor cable system. See your G-E wire and cable specialist, or, write to Sect. W78-102 Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

®Registered Trade-mark General Electric Company

You can put your confidence in—

GENERAL ELECTRIC



43-company study shows . . .

Utility Inventories Have Been Cut

Electric utilities are generally reflecting the cautious attitude on inventories prevalent throughout most of American industry. This is apparent from a study conducted by Electrical World to determine what changes utilities are making in inventory policies on seven basic utility commodities.

Approximately half of the 43 companies represented showed cuts in current average inventory policy in terms of days.

For example, 17 of the companies indicated they had made cuts in inventory on distribution line poles, crossarms and line insulators during the past half year, or over the year ending June 30.

Another 16 companies indicated cuts in bare and weatherproof line wire, 18 in standard distribution transformers, and 19 in distribution line hardware.

Meanwhile, only in the case of line wire had more than three companies increased inventories. Most of the remainder—about as many as those indicating cuts—were holding to the status quo.

The cuts in days ranged from 15 days to a half year, with 30 days being the most common cut.

Many Influences . . . From the remarks which many of the companies included with their returns, the factors which influenced inventory accumulation were availability of jobbers' stocks, strategic location of suppliers and the suppliers' current delivery schedules.

Some of the companies reported attempts to reduce special stocks and obsolete items in an effort to reduce inventories. One company reported a high inventory because their section of the country was subject to violent electrical and wind storms.

MANUFACTURERS' EARNINGS

Company	Period Months Ended		Net Income 1953	Net Income 1952	Earnings Per Common Share 1953	Earnings Per Common Share 1952
Dow Chemical	3	Aug.	$9,762,957	$7,939,889	$ .43	$ .36(a)
Holophane	12	June	658,462	784,692	1.74	2.08
Rohm & Haas	3	Sept.	1,448,000	1,253,000	1.54	1.32
Rohm & Haas	9	Sept.	4,832,000	3,807,000	5.16	4.03

Note—(a) Adjusted to reflect three-for-one stock split in September, 1952.

Adequate Wiring Is Show Theme

"Safety Through Adequate Wiring in American Homes and Business" was the theme of the second National Electrical Industries Show held in New York City this month. Over 11,300 persons, 30% over last year's figure, attended, representing manufacturers, jobbers, wholesalers, distributors, contractors, architects, engineers, builders, purchasing agents, and utility personnel. Forty types of products were on display, including cable, wiring and conduit, household and industrial lighting, ventilating equipment, meters and controls, power tools, and hand torches. W. S. Orkin and H. R. Meyer, managers of the show, emphasized that losses attributed to fire resulting from faulty electrical usages totaled $97,810,080 in 1952. This is about 12% of the total U. S. property losses due to fire.

Japanese Utilities Order 3 Westinghouse Plants

Two Japanese companies have ordered three complete Westinghouse 75,000-kw thermal electric power plants costing approximately $29.5 million. Announcement of the orders was made by William E. Knox, president of Westinghouse Electric International Co, a day after the International Bank for Reconstruction and Development had authorized loans totaling $40.2 million for expansion of privately owned electric facilities in Japan.

Two of the three units, first ever exported from the U. S., have been ordered by the Kansai Co and will be installed in central Japan at Tanagawa Station near Osaka, second major city of the country. The Kyushu plant will be identical in design and will be located at Karita, on the northeast shore of the island of Kyushu in southern Japan.

The International Bank loans, guaranteed by the Government of Japan, were made to the Japan Development Bank, an agency established in 1951 to supply long-term credit for high-priority industrial development and economic reconstruction. Kansai Electric will get $21.5 million of the funds, and Kyushu Electric will get $11.2 million.

MANUFACTURING BRIEFS

American Smelting & Refining Co and St. Joseph Lead Co have been named defendants in a civil anti-trust suit filed by the Justice Department. The government charged that the companies, two of the largest producers of lead in the country, have restrained, attempted to monopolize and monopolized interstate and foreign trade in the production and sale of primary lead.

Copper Institute reported that average daily shipments of copper to domestic fabricators increased from 3,451 to 3,496 tons a day between August and September. . . . Meanwhile, primary aluminum production set a new high in August, according to the Aluminum Association. Output was 221,900,007 lb, against 218,570,626 lb in the previous peak month of July.

Reynolds Mining Corp, a subsidiary of Reynolds Metals Co, has begun development of its aluminum ore reserves in Haiti. The deposits, about 80 miles from Port-au-Prince near the port of Miragoane, are five miles from deep water. The project will cost several million dollars.

Westinghouse Electric Corp has announced formation of a new engineering section responsible for a development, design, and test program involving certain equipment for nuclear power plants. The plant, to be located in Pittsburgh, is expected to be completed this fall. Manager of the new equipment development section will be Edward J. Kreh, formerly section manager in the power plant department of the Atomic Power Division.

MEETINGS CALENDAR

Edison Electric Institute
Electrical Equipment Committee, Jung Hotel, New Orleans, Nov. 2-3; Market Development and Electrical Applications Committee, Washington, Nov. 3-4; Accounting Executive Committee, Edgewater Beach Hotel, Chicago, Nov. 12-13; EEI-AGA General Accounting Committees, Jung Hotel, New Orleans, Nov. 30-Dec. 1.

Pennsylvania Electric Association
Fall Meeting, Communications Committee, Hotel Brunswick, Lancaster, Pa., Oct. 29-30; Fall Meeting, Systems Operation Committee, Castleton Hotel, New Castle, Pa., Nov. 5-6.

American Institute of Electrical Engineers
Fall General Meeting, Muehlebach Hotel, Kansas City, Mo., Nov. 2-6.

National Electrical Manufacturers Association
Annual Meeting, Haddon Hall, Atlantic City, N. J., Nov. 9-12.

Wisconsin Utilities Association
Electric and Gas Section Convention, Schroeder Hotel, Milwaukee, Nov. 11-13.

*__Institute of Radio Engineers__
Annual meeting of Professional group on Vehicular Communications, Somerset Hotel, Boston, Nov. 12-13.

Pacific Coast Electrical Association
Annual Hawaiian Conference, Honolulu, T. H., Nov. 19-20.

New Jersey Utilities Association
Annual meeting, Seaview Country Club, Absecon, N. J., Nov. 19-20.

Southeastern Electric Exchange
General Sales Conference, Atlanta Biltmore Hotel, Atlanta, Ga., Nov. 19-21.

American Society of Mechanical Engineers
Annual Meeting, Statler Hotel, New York, Nov. 29-Dec. 4.

Public Utilities Advertising Association
Region Two, Annual Meeting, Skytop, Pa., Dec. 10-11.

*Addition this week.

When cemented to caps, top and bottom, this porcelain becomes what is probably the strongest switch-and-bus insulator ever produced.

Illustrated in the production of this unit is a noteworthy and valuable characteristic of the Lapp Post design. The simplicity of the structure, the uniform reliability of Lapp porcelain, and the certainty of cemented caps, instead of pins or inserts, all are such that it is routinely possible to design an insulator into an unexplored strength field. And it will meet specified characteristics, without risk of unknown variables.

In this case, specified cantilever strength requirement was 10,000 pounds. Because time was short, we designed for a generous factor of safety—and obtained all of it. The porcelain is 11½″ diameter, 13⅜″ high, and weighs a little over 60 pounds. It is, of course, the traditional Lapp Station Post closed end porcelain, with integral top diaphragm.

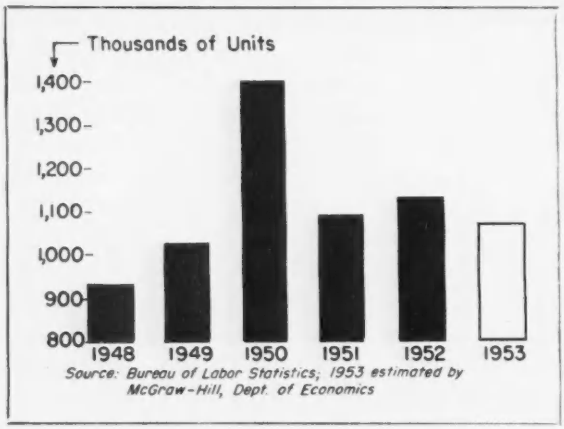
HOW MUCH STRENGTH DO YOU NEED IN A SWITCH-AND-BUS INSULATOR?

In the Lapp plant, such porcelains as this are almost commonplace. Everywhere you look you will see pieces with the characteristic Post corrugations, in all stages of production, and in sizes for duty over a wide range of voltages and strengths. And every unit will be proved, through extensive testing facilities, to its specification requirements. No where else will you find such emphasis, such devotion, to "difficult" porcelains.

Users of Lapp porcelain—as components of electrical equipment, or as insulators for transmission or station duty—profit, in security, in long life, in low upkeep, from the experience and skill born of such design and production.

Lapp Insulator Co., Inc., Le Roy, N. Y.

ELECTRICAL BUSINESS OUTLOOK



Source: Bureau of Labor Statistics; 1953 estimated by McGraw-Hill, Dept. of Economics

Housing May Be Stabilizing

Upward trend of housing starts in September was good news for the worried builders

The downtrend in housing starts may be over—at least for a while. Signs are showing up to indicate that homebuilding has stabilized around a new level. The new level is lower than the level of last spring or last year. But it still deserves to be called a boom amount of business.

This new stability is not likely to last for long. There are good reasons for expecting a further drop in homebuilding next spring. But for the time being, it's a welcome development for a worried industry.

Housing has been sliding off since last spring. Allowing for regular seasonal variations, housing starts dropped each month between February and August. Homebuilders started housing units at a 1.2 million annual rate in February. By July they were back to a rate of less than one million. The dollar value, seasonally adjusted, of residential building put in place each month has also declined through most of the year.

Tight Money Slowed Building . . . The big drop was caused primarily by tight money. In early 1953 lenders were able to earn good returns in fields other than residential mortgages; so they shifted away from mortgages. Mortgage money became hard to find except at rates higher than builders wanted to pay. Result: fewer housing starts.

Now the situation is changing. Money is—or soon will be—easier to find. Interest rates seem headed downward (EBO, Oct. 12). So now mortgages look somewhat more attractive to lending organizations. In addition it's naturally easier to find money for the smaller number of homes now being built.

Here are some of the signs that housing is stabilizing around its present level. One—perhaps the biggest one—is the report on housing starts in September. Preliminary figures indicate that starts rose, on a seasonally adjusted basis, for the first time since February. Builders started housing units at an annual rate of well over 1 million in September, compared to 970,000 in August.

These figures on housing should not be taken too seriously. Housing start statistics are not particularly accurate, and the method of adjusting for seasonal changes is also somewhat dubious. Nevertheless, the change between August and September was big enough to indicate at least some alteration in the trend.

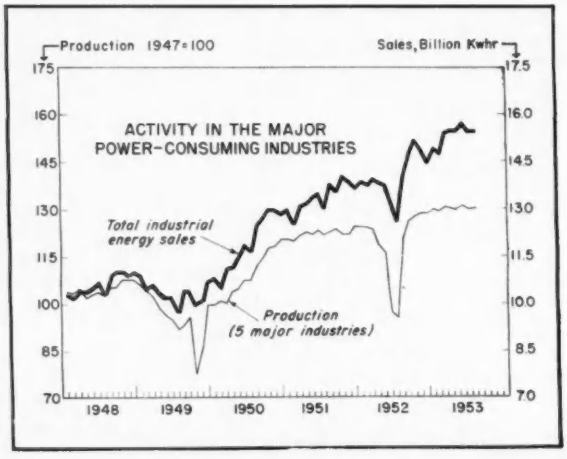
Signs Point to the End of the Drop . . . And there are other signs to back this up. Builders report that they have just about finished cutting back on their activities. That's not true of all builders, of course. But the average homebuilder has already made about all the adjustment he thinks is necessary to meet the new mortgage conditions.

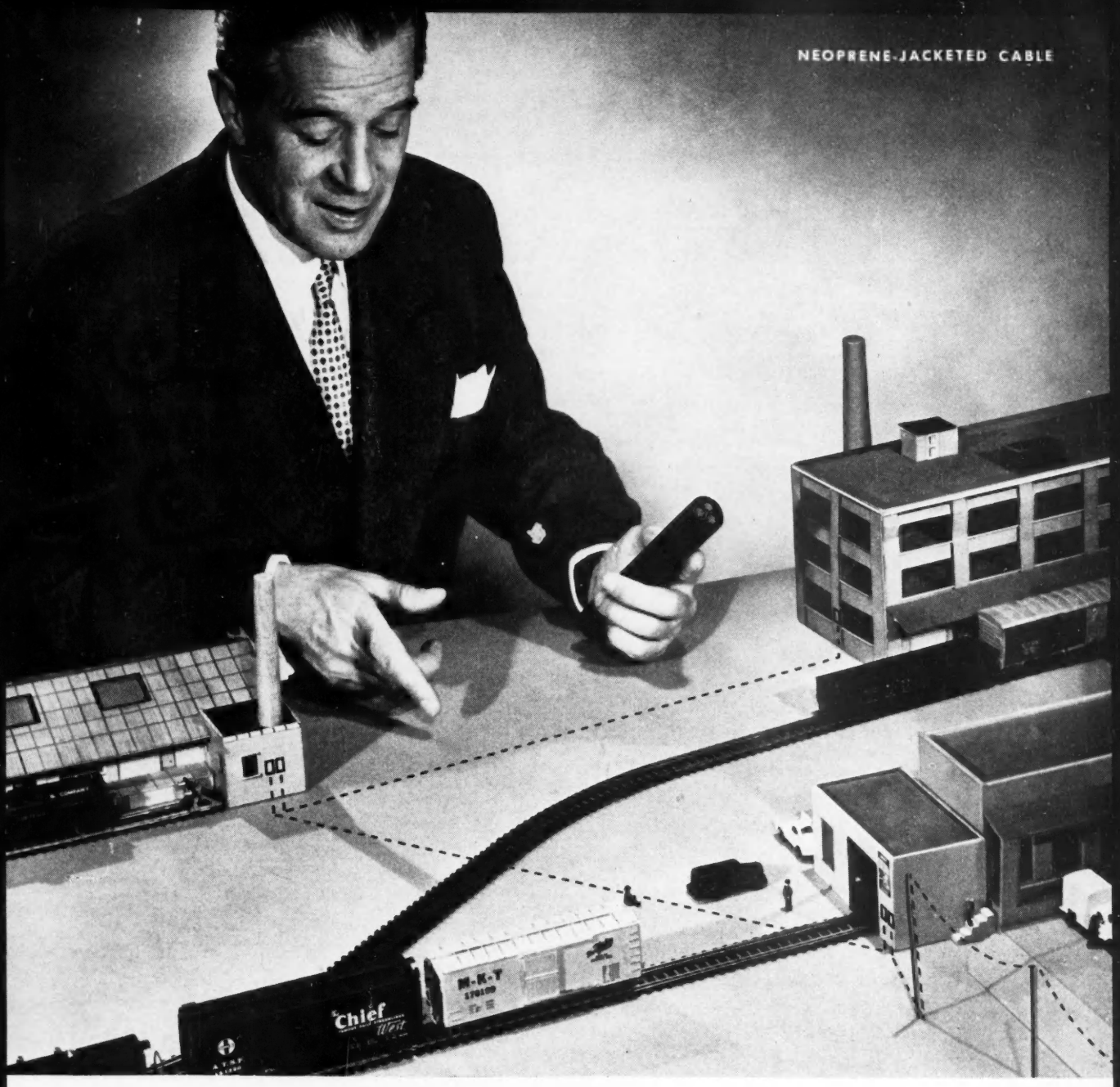
Contract awards for housing also support the idea that the big drop has already been passed. Contract awards for large housing projects ($300,000 or more) improved in September and stayed relatively high in early October, according to Engineering News-Record. They hit bottom in July and August.

However, this doesn't mean that housing starts will stay indefinitely at their new level—around 1 million a year. There are still some basic reasons for thinking that the longer-run outlook calls for a further drop.

One reason for expecting another drop lies in changes in population (EBO, Aug. 31). Family formation—source of most new demand for housing—is due to decline. The smaller numbers of children born in the early thirties are now reaching marrying age; so marriages will be fewer.

In addition, the general outlook for business is for some decline (EW, Sept. 21, p 132). A drop in business sharp enough to cut consumer incomes would make it a lot harder to sell or rent new housing. So far, there has been little trouble with disposing of new housing, except in scattered areas. But trouble will develop fast any time incomes stop rising.





Durasheath: saves needless power-line jointing

Why complicate cable installations by shifting from buried to duct or aerial types in industrial plant feeder lines? Flexible, easily handled DURASHEATH* Cable can cut your costs. You can run this tough, versatile cable underground directly in the earth, overhead or in ducts (or in any combination) without needless, time-consuming jointing. Its light weight and flexibility make duct pulling fast even in zero weather. Aerial assemblies go faster. Linemen like to work with it. You stock only one cable type — all-purpose DURASHEATH.

* * *

As one of several types of ANACONDA power cables, DURASHEATH is available in all sizes, single or multi-conductor, copper or aluminum, from 600 to 15,000 volts. It is thoroughly dependable for industrial plants, railroads, series or multiple street lighting, airport† lighting, residential primaries and secondaries, as well as for such uses as Type USE cable for underground service entrance. *Anaconda Wire & Cable Company, 25 Broadway, New York 4, N. Y.*

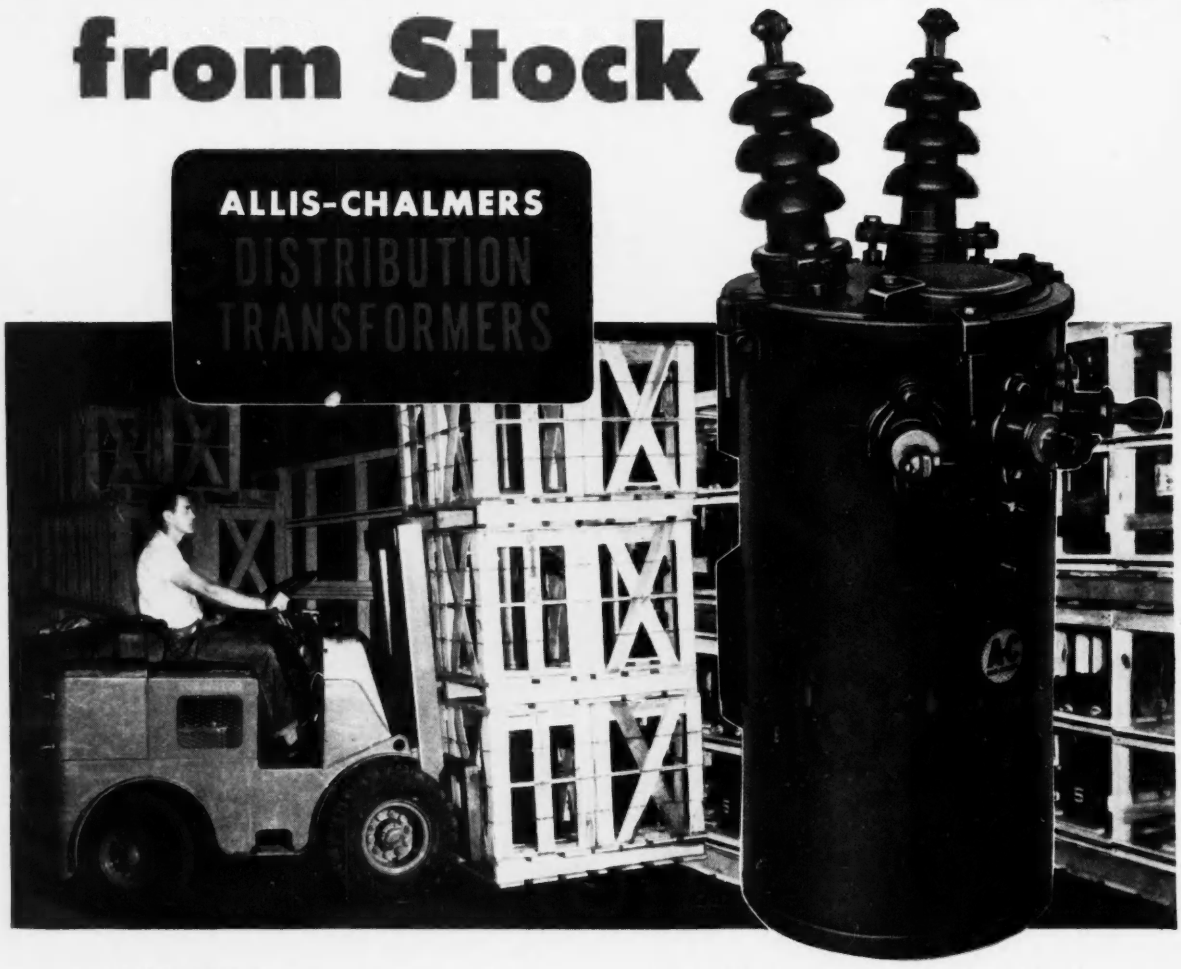
*Reg. U. S. Pat. Off. 53312

ANACONDA®

Primary and secondary distribution cables • building, machine tool, control and communication wire • portable cords and cables • bus-drop cables • apparatus cables • copper, aluminum, copperweld conductors • wire and cable accessories.

†*When ordered to CAA Specification L-824*

Immediate Delivery from Stock



GOOD NEWS! You can now get your distribution transformers out of local stock to take care of emergency situations. Allis-Chalmers offers you self-protecting and overload indicating types as well as conventional designs. All are available in most popular ratings from strategically located stock points throughout the country.

Centralized control of all stock distribution transformers gives Allis-Chalmers fast, flexible handling throughout the nation. Transformers are constantly shifted to meet area requirements, thus assuring clean, fresh stock.

Regardless of your immediate requirements, it will pay you to investigate your local A-C transformer supply for fast, convenient service. Take stock of your needs today and order now from your nearby A-C district office. Or, for information, write Allis-Chalmers, Milwaukee 1, Wisconsin. A-4158

ALLIS-CHALMERS

A-C ALLIS CHALMERS